2009 Design Network

Preface

The *2009 Design Network Phase* was developed to outline the steps necessary for making projects successful and to reflect how projects should be completed with today's technology. Specifically, the network was developed to assist Project Managers and other team members complete specific tasks:

- Maintain consistency with other project delivery phases (e.g., concept, environmental, and construction phases)
- Easily setup design projects in ePM
- Outline necessary steps of design that can be logically followed
- Assign appropriate discipline resources to design activities and track project status
- Allow all team members logical activities to track time and determine status
- Streamline the design process when possible
- Focus on project delivery goals at appropriate project stages

To accomplish these goals, the network is divided into six stages of project development:

1. Project Identification
2. Set Initial Geometry
3. Design and Environmental Clearance
4. Plan Production
5. Project Documents
6. Advertisement

Activities are provided in each stage and are listed by discipline track. Each discipline track is assigned a color and letter designation. See the *2009 Design Network Diagram*. Each stage has a numeric range that correlates with the activity's assigned number. This numbering system will help identify which stage of design the activity is taking place. The ranges are as follows:

- Project Identification: Numbers 0 to 19
- Set Initial Geometry: Numbers 20 to 29
- Design and Environmental Clearance: Numbers 30 to 49
- Plan Production: Numbers 50 to 69
- Project Documents: Numbers 70 to 79
- Advertisement: Numbers 80 to 89

Along with the number designation, each activity is also given a color and letter designation. The color and letter reflects the discipline track that will be responsible for the activity. Each of the activities in the network will also give the project team members an appropriate code to document their time during each stage. The activity codes will also assist the Project Manager to initially allocate resources by stage and to monitor the amount of effort put forth on each activity and throughout each stage.

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Project Stages

Each stage is concluded with a milestone project meeting indicated by the letter V—09V, 19V, 29V, 39V, 68V, 69V, 79V—to bring team members together and assess the status of the project by discussing things like scope, schedule, and budget. As shown on the 2009 *Design Network Diagram*, each discipline track has concurrent activities with other disciplines. Although shown symbolically on the chart as separated activities, it is essential that disciplines communicate and coordinate design with each other during each stage.

The following is a short outline of the goals for each project stage:

Project Identification

- Setup project activities and organize the project team.
- Develop an understanding of the project based on the concept report.
- Review information known about the project during the concept phase or, if necessary, provide additional research to obtain this information.
- Determine if the project is within the scope, schedule, and budget originally identified in the concept development phase.
- Hold a project identification meeting to coordinate the scope of the project and approximate costs between team members. The focus of this meeting is to identify the proposed improvements' impacts and the possible conflicts with other items of work. For this reason, the use of scroll plots and/or electronic design files is encouraged.
- Determine a strategy for delivering critical elements of the project within the scheduled time.
- Negotiate resources, establish the project budget, and set a baseline in ePM.

Set Initial Geometry

- Based on input from the project identification meeting (19V), model the project to refine the proposed improvements' anticipated impacts. This design will include all the disciplines' preliminary design.
- Agency coordination and environmental resource identification and research will also be ongoing throughout this stage.
- Right-of-way (ROW) managers will meet during this time to determine the initial ROW needs for the project. Early acquisition parcels will be identified and the ROW plans will be developed for this parcel (25W).
- Each discipline will compile a cost estimate that will be included in the total project cost estimate and discussed at the geometry review meeting (29V).
- This stage will be concluded with the initial geometry review meeting (29V) for all disciplines. At the meeting, the disciplines will discuss the preliminary design shown on a scroll plot or in electronic design files. The project's total cost estimate, scope, and schedule will also be discussed among all team members.

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Design and Environmental Clearance

- Based on input from the geometry review meeting (29V), the project roadway model will be refined to better understand the impacts of the proposed improvements and how the designs of each discipline interact.
- The categorical exclusion (categorical exclusion) document will be written and approved during this stage, and the permitting process will be started. The categorical exclusion documents will also be written for the early acquisition parcels.
- The ROW appraisal process will begin for the early acquisition parcels, and the final ROW plans will be completed along with a final estimate for all ROW parcels.
- The design review meeting (39V) will again give the team members from each discipline an opportunity to meet and discuss the refined model. At this meeting, electronic design files or a scroll plot should be used for the design discussion to better understand how each discipline's design works with all other designs. This will allow all disciplines to agree to the final design. The construction engineering manager should be included in this review to assist with constructability review of the project.
- The total project cost estimate will be updated, and the project budget along with the scope and schedule will be discussed.

Plan Production

- Plan Production will begin once the revisions from the design review meeting (39V) are incorporated. Any updates to the design during the Plan Production stage should be minimal. Sheets are cut and pay items on the plan sheets are called out for all disciplines.
- The final ROW plans will have been developed, final appraisals will have been underway, and, if necessary, property condemnation and owner relocations will have started.
- At the plan review meeting (69V), team members will submit comments and discuss the plan sheets. Once again, the total cost estimate will be updated and discussed at this meeting along with the scope and budget.

Project Documents

- Based on input from the plan review meeting (69V), the project team will update the plan sheets to reflect the comments from the project team.
- The project documents, including specifications and summary sheets, are developed during this stage.
- The project documents review meeting (79V) will give the project team an opportunity to comment on the project documents, to discuss the updated project cost estimate, and to review the scope and schedule.

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Advertisement

- Based on input from the project documents review meeting (79V), the project team will update the project documents to reflect the comments from the project team.
- The project advertisement package will be developed and the final review will take place. The package will include the final structure acceptance, the storm water pollution prevention plan (SWPPP), and all other plan sheets, specifications, summaries, etc.
- The last activity in this stage is advertisement.

Project Activities

Each stage contains multiple activities. This handbook outlines each activity and contains an Overview, Deliverables List, Distribution List, Responsibility Chart, and a description of each task. These are to be used as guidelines and should be adapted for each project's unique context.

In each activity, a Responsibility Chart shows the recommended tasks that are necessary to complete the activity. This table shows an activity leader and responsibility party columns. Information regarding the project roles and titles can be found in the *2009 Project Delivery Handbook*.

Each activity has an Activity Leader listed in the chart. The Activity Leader is a member of the lead management unit or a consultant and is the person ultimately responsible to see that the activity is completed successfully. Each Responsibility Chart contains an X indicating which team member is the responsible party and is ultimately accountable for the completion of that task. The chart is not intended to list all team members involved in the successful completion of the activity. They may delegate the completion of specific tasks to other team members. However, those with the X are the people ultimately responsible for completion of the work. Others listed in the chart could be involved in the completion of the activity by providing input, review, support, etc.

An example of a Responsibility Chart is found below.

Task	Responsible Party		
	Activity Leader		
	Central ROW	Region ROW	Phase Leader
▪ Conduct Field Review of the Project			X
▪ Identify Parcels to Avoid	X		
▪ Develop Initial ROW Requirements		X	
▪ Develop Initial Cost Estimate	X		
▪ Develop Initial Acquisition Schedule	X		

In this example, the representative of Central ROW is the Activity Leader and will be responsible for the completion of the entire activity and is also responsible for the completion of the tasks *Identify Parcels to Avoid*, *Develop Initial Cost Estimate*, and *Develop Initial Acquisition Schedule*.

The Region ROW representative will be responsible for successful completion of the task *Develop Initial ROW Requirements*. The Phase Leader will be responsible for the task *Conduct Field Review of the Project*.

Others listed on the chart, although they do not have an X, can still be involved in one or more tasks to provide support or review. As shown above, the Phase Leader will likely be involved in the task *Develop Initial ROW Requirements* by providing information to the Region ROW representative regarding potential impacts to ROW.

Total Project Cost Estimate and Engineer's Estimate

Milestone meetings are held at the end of each stage of the design phase. One of the goals of this meeting is to develop, update, and/or review the Total Project Cost Estimate. Each discipline will submit their updated quantities and unit costs to the Phase Leader for inclusion in the Total Project Cost Estimate. Estimates should follow the statewide estimate review process.

The Project Manager will be informed of any updates to the Total Project Cost Estimate. This estimate will be updated throughout the project design and used to create the Engineer's Estimate in UDOT's Project Development Business System (PDBS) during the Project Documents stage.

The Total Project Cost Estimate is the complete list of all costs associated with the project, including: Project Engineering, ROW, Utilities, Environmental Mitigation, Construction (including: Roadway and Drainage, Traffic and Safety, Structures, and Intelligent Transportation Systems (ITS), etc.), Construction Engineering, Incentives, Contingencies, and Miscellaneous. Use the Concept Project Cost Estimate as the template for the Total Project Cost Estimate.

Project Coordination

As with any project, coordination is essential for project success. Coordination and communication within the different disciplines on the project team and with outside agencies and consultants is necessary to deliver a project that meets the needs of the public and is on schedule and within budget.

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Potential disciplines for project team coordination may include, but are not limited to, the following:

Utah Department of Transportation (UDOT) Disciplines
Project Management
Roadway
ROW
Utilities
Hydraulics
Traffic and Safety
ITS (Automated Traffic Management System (ATMS))
Structures
Geotechnical
Materials
Multi-Modal
Environmental
Landscape Architecture
Survey and Mapping
Public Involvement (PI)

Outside agency contacts may also include, but are not limited to, the following:

Federal Agency
Federal Highway Administration
USDA—Forest Service
Bureau of Reclamation
Bureau of Land Management
National Park Service
U.S. Fish and Wildlife
U.S. Natural Resources Conservation
Bureau of Indian Affairs
Internal and External Stakeholders
State Agencies
State Land Board
State Parks and Recreation
Local Governments
Utah Travel Council
Law Enforcement
Local Emergency Services
Region Operation Engineer
Maintenance Station Supervisors
Indian Nations
Railroads
Irrigation Companies
Private Property Owners

Quality Control (QC)/Quality Assurance (QA)

Each project requires a QC/QA plan, a project QC/QA responsibility chart, and a project QC/QA signature sheet.

The approved QC/QA plan will address the purpose, the applicable standards, the control of the QC processes, procedures, and review activities, and the document control as outlined by UDOT. For more information, refer to the UDOT QC/QA Website.

The responsibility chart is populated with the individuals responsible for design/production, QC, and QA. As the activities are finished and checked, those indicated on the responsibility chart apply their digital signatures to the project QC/QA signature sheet.

QC/QA is documented through the following:

- At meeting milestones, provide the electronic QC/QA signature sheet for the completed stage.
- The originator certifies accuracy in accordance with the approved QC/QA plan.

Conclusion

The *2009 Design Network* is intended to be a dynamic document. UDOT encourages suggestions and comments from users of the network to improve the design process. By providing comments, you will be helping to make this document a more useful tool for everyone. Submitted comments will be reviewed on a regular basis for implementation by the UDOT Project Development department. To submit comments, please send them to DNcomment@utah.gov.

11G Preliminary Geotechnical Investigation

Overview

Identify potential issues that may affect the design and construction of the project. Identify potential mitigations and develop a plan to select and design appropriate mitigations.

Deliverables

- □ Preliminary Geotechnical Summary

Distribution

- □ Project File
- □ 13R

Task	Responsible Party Activity Leader Geotechnical Engineer
▪ Conduct Preliminary Geotechnical Investigation	X
▪ Identify Potential Mitigation Strategies	X
▪ Develop Geotechnical Work Plan	X
▪ Provide Preliminary Geotechnical Summary to 13R	X

Conduct Preliminary Geotechnical Investigation

- Locate any information about the project area that could include, but is not limited to, the following:
  - Previous Work
  - Reports
  - Geologic Mapping
  - Seismic Studies
  - As-Builts
- Visit the field
- Identify issues that may impact or affect the design and construction of the project

Identify Potential Mitigation Strategies

- Develop a preliminary strategy to mitigate identified issues
- Develop preliminary costs to implement mitigations

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Develop Geotechnical Work Plan

- Identify the information needed to complete the final geotechnical design
- Develop a plan, cost, and schedule to obtain the information needed to conduct the final geotechnical investigation
- Develop a plan, cost, and schedule to complete the geotechnical design

Provide Preliminary Geotechnical Summary to 13R

The Preliminary Geotechnical Summary will include the following:

- Summary of geotechnical concerns
- Potential mitigation strategies
  - Costs
  - Construction schedule impacts
- Geotechnical work plan
- Updated design schedule and Total Project Cost Estimate

13G Assess Existing Pavement Condition

Overview

Evaluate the existing pavement condition and compare the results of the evaluation to the existing conditions documented in the concept phase's preliminary pavement design. If a concept pavement design is not available, evaluate the existing pavement conditions to assess the level of pavement design needed.

Deliverables

- ☐ Pavement Conditions Report

Distribution

- ☐ Project File
- ☐ Region Materials Engineer
- ☐ State Materials Engineer
- ☐ 13R

Task	Responsible Party Activity Leader Region Pavement Management Engineer
▪ Obtain Preliminary Pavement Design	X
▪ Conduct Field Review	X
▪ Write Pavement Conditions Report	X

Obtain Preliminary Pavement Design

- Obtain preliminary pavement design from the Concept Report

Conduct Field Review

If the preliminary pavement design exists, do the following:

- Conduct a field review to determine the validity of the pavement conditions assumed in the preliminary pavement design. If the current pavement conditions are not consistent with those assumed in the preliminary pavement design, conduct a field review according to the instructions for a non-existent preliminary pavement design found below.

If the preliminary pavement design does not exist, do the following:

- Conduct a field review to determine the existing pavement conditions. This review will be used in developing the pavement design.

- Determine the condition of the existing pavement using detailed data sheets from the Statewide Pavement Survey. If needed, supplement the data by obtaining and testing no more than four cores per mile. Also, in exceptional cases, obtain and test soil samples but no more than four cores per mile.

Write Pavement Conditions Report

If the current pavement conditions match the pavement conditions assumed in the preliminary pavement design, do the following:

- Write a memo affirming the pavement conditions assumed in the preliminary pavement design.

If the current pavement conditions do not match the pavement conditions assumed in the preliminary pavement design or if the preliminary pavement design does not exist, do the following:

- Write a pavement conditions report assessing the current conditions of the pavement and assume the pavement conditions at the time of construction.

21G Confirm Pavement Design

Overview

Confirm the concept report pavement design remains applicable and update/create the pavement as needed.

Deliverables

- □ Confirmed Pavement Design

Distribution

- □ Project File
- □ Phase Leader
- □ Roadway

Task	Responsible Party	
	Activity Leader	
	Region Pavement Management Engineer	Phase Leader
▪ Review Concept Report	X	
▪ Conduct Field Visit	X	
▪ Determine Any Revisions/Write Modification	X	

Review Concept Report

Obtain the Concept Report and review the pavement design for the following:

- Pavement scope
  - Testing strategy used
  - Proposed design life
  - Additional testing required from testing strategy
  - Potential material sources
- Testing
  - Core and trench for thickness and condition of existing pavement
  - Extraction/gradation on cores
  - Strength and stripping tests
  - Trench for sub-base and sub-grade samples
  - Concrete pavement evaluation
  - Falling Weight Deflectometer testing
- Centerline Soil Survey Report
  - California Bearing Ratio
  - Soil Classification-Plastic Limit

  - Liquid Limit
  - Plastic Index
  - Soluble Salts
  - Resistivity
  - pH
- Identify and determine mode(s) of failure for the existing pavement
- Evaluate the need for underdrains and coordinate with the project Hydraulic Engineer
- Review pavement design options used
- Review engineering and economic analysis of options
- Verify the design is the best option
- Look at updated traffic data to verify that the pavement design remains applicable

Conduct Field Visit

Determine Any Revisions/Write Modification

31G Conduct Geotechnical Investigation

Overview

Conduct all drilling and soil sampling for all roadways and structures. Coordinate with roadway and structure design engineers to identify the location of the investigation. Refer to the *UDOT Geotechnical Manual of Instruction* for guidance.

Deliverables

- ☐ Field Drill Logs
- ☐ Investigation Location Map
- ☐ Samples Submitted for Testing

Distribution

- ☐ Project File
- ☐ Geotechnical Design Engineer
- ☐ 33G

Task	Responsible Party			
	Activity Leader: Geotechnical Design Engineer	Chief Geotechnical Engineer	Drilling Geologist	Roadway Designer
▪ Conduct Field Review	X			
▪ Review Literature and References	X			
▪ Determine Access and Layout of Investigations	X			
▪ Develop a Traffic Control Plan for Drilling	X			
▪ Obtain Clearances and Permits for Drilling	X			
▪ Drill and Sample			X	
▪ Request Survey for Bore Hole Location	X			
▪ Prepare Logs	X			
▪ Prepare Investigation Location Map	X			
▪ Sort and Submit Samples for Testing			X	

Conduct Field Review

- Evaluate site conditions

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Review Literature and References

- Review the concept report
- Review geologic maps

Determine Access and Layout of Investigations

Coordinate with appropriate designers to do the following:

- Obtain/evaluate cut and fill slopes and cross-sections
- Obtain structure locations and sizes
- Establish a conceptual settlement or slope stability mitigation plan
- Establish a subsurface drilling and soil testing plan
- Establish a field reconnaissance plan
- Obtain a map of environmental resources/potential environmentally sensitive sites

Develop a Traffic Control Plan for Drilling

Coordinate with the roadway designer to develop a traffic control plan if necessary.

Obtain Clearances and Permits for Drilling

Potential Contacts

Agency	Information Requested
Bureau of Land Management/Forest Service/National Park Service	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Natural Resources Conservation Service	Soil Characteristics
State Land Board	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utah Division of Natural Resources	Old Mine Sites Drill Sites
Indian Nations	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utilities	Buried Utilities (Blue Stake)
Railroads	Permission to Enter
Private Property Owners	Permission to Enter
Division of Wildlife Resources/State Engineer's Office/U.S. Army Corps of Engineers/U.S. Bureau of Reclamation/U.S. Fish and Wildlife Service	Permission to Access Potential Environmentally Sensitive Areas

Drill and Sample

Conduct the drilling and soil sampling necessary to provide design recommendations for mitigation of slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway

embankment construction. Conduct the drilling and soil sampling necessary to provide the design for structure foundation.

Request Survey for Bore Hole Location

Prepare Logs

Prepare generalized soil boring logs and other charts and graphs as required.

Prepare Investigation Location Map

Prepare a map showing each labeled drill site location.

Sort and Submit Samples for Testing

33G Conduct Geotechnical Testing

Overview

Conduct laboratory soil testing and prepare the soil test report.

Deliverables

- ☐ Soil Testing
- ☐ Soil Test Report

Distribution

- ☐ Project File
- ☐ Geotechnical Design Engineer
- ☐ 35G

Task	Responsible Party		
	Activity Leader		
	Geotechnical Lab Technician	Geotechnical Design Engineer	Chief Geotechnical Engineer
▪ Develop Testing Program		X	
▪ Prepare Samples	X		
▪ Conduct Laboratory Tests	X		
▪ Prepare Soil Testing Report	X		

Develop Testing Program

Identify test necessary for design analysis.

Prepare Samples

Create the necessary samples for AASHTO testing procedures for each testing program.

Conduct Laboratory Tests

Conduct all laboratory soil testing to provide design recommendations to mitigate slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway embankment construction. Conduct all laboratory tests for structure foundation design.

Prepare Soil Testing Report

Prepare a summary of test data and other charts and graphs as required.

35G Develop Geotechnical Design

Overview

Conduct geotechnical analysis. Make recommendations for cut and fill slope design. Develop embankment settlement mitigation and monitoring recommendations. Make structure foundation recommendations.

Deliverables

- ☐ Boring Logs for Soil Data Sheets
- ☐ Geotechnical Analysis
- ☐ Figures

Distribution

- ☐ Project File
- ☐ Roadway Design Engineer
- ☐ Structures Design Engineer
- ☐ 37G

Task	Responsible Party	
	Activity Leader	
	Geotechnical Design Engineer	Chief Geotechnical Engineer
▪ Prepare Boring Logs for Soil Data Sheets	X	
▪ Conduct Geotechnical Analysis	X	
▪ Develop Recommendations	X	

Prepare Boring Logs for Soil Data Sheets

Prepare final geotechnical drilling logs. Generate the logs in a graphical format that is compatible with MicroStation. Give them to the structural design lead for inclusion in structure plans.

Conduct Geotechnical Analysis

Conduct geotechnical analysis, which includes design for cuts, fills, settlement, stability, and foundations and walls. Develop an instrumentation plan for construction and long-term monitoring.

Develop Recommendations

Develop embankment and cut slope recommendations. Develop structure foundation recommendations. Provide recommendations to the roadway and structural design engineers.

37G Draft Geotechnical Report

Overview

Based on the results of previous activities, develop the draft geotechnical report for peer review.

Deliverables

- ☐ Draft Geotechnical Report

Distribution

- ☐ Peer Review

Task	Responsible Party	
	Activity Leader	
	Geotechnical Design Engineer	Chief Geotechnical Engineer
▪ Prepare Draft Report	X	
▪ Distribute for Peer Review	X	

Prepare Draft Report

Using the geotechnical analysis, draft the report and include recommendations, design parameters, and data.

Distribute for Peer Review

Provide the draft report to the Chief Geotechnical Engineer, Structures Design Engineer, and peer review committee for review.

51G Finalize Geotechnical Report

Overview

Incorporate review comments and produce the final geotechnical report. Distribute the report to the team.

Deliverables

- ☐ Final Geotechnical Report

Distribution

- ☐ Project File
- ☐ Geotechnical File
- ☐ Electronic Plan Room

Task	Responsible Party	
	Activity Leader	
	Geotechnical Design Engineer	Chief Geotechnical Engineer
▪ Conduct Peer Review	X	
▪ Incorporate Review Comments	X	
▪ Finalize Report	X	
▪ Distribute Report	X	

Conduct Peer Review

Incorporate Review Comments

Incorporate comments from 39V into the Geotechnical Report.

Finalize Report

Include engineering stamp and signatures.

Distribute Report

71G Develop Geotechnical Project Documents

Overview

Develop geotechnical plan sheets and documents required for the advertisement of the project.

Deliverables

- □ Geotechnical Plan Sheets
- □ Geotechnical Project Documents

Distribution

- □ Project File
- □ 71R

Task	Responsible Party Activity Leader Geotechnical Design Engineer
▪ Prepare and Draft Soil Data Sheets	X
▪ Prepare Geotechnical Special Provisions	X
▪ Prepare and Draft Geotechnical Details for Plan Sheets	X

Prepare and Draft Soil Data Sheets

Prepare Geotechnical Special Provisions

Prepare and Draft Geotechnical Details for Plan Sheets

11I Develop Initial Public Involvement Plan

Overview

If preceded by an environmental assessment (EA) or environmental impact statement (EIS) or if the categorical exclusion requires a substantial amount of PI, create a PI plan for the design phase based on the UDOT template. This plan should include key messages as well as a schedule tailored for the project. The PI plan should also define the project's stakeholders, the commitments made to stakeholders in previous project phases, a project team communication plan, and the media outreach for the project if needed. The tasks that are associated with this scenario are described below as *(a)* tasks.

If this project entails a categorical exclusion with minimal PI, use the *(b)* tasks below. Identify stakeholder groups and develop preliminary plans for PI activities.

Deliverables

- ☐ (a) PI Plan That Includes PI Activities Schedule
- ☐ (a) Stakeholder Database
- ☐ (a) Media Outreach Plan
- ☐ (b) Initial List of Stakeholder Groups
- ☐ (b) Initial Plan for PI Activities

Distribution

- ☐ Region PI Manager (PIM)
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region PIM (Review)	Consultant (Production)
▪ (a) Update Stakeholders List	X	
▪ (a) Develop PI Activities Schedule	X	
▪ (a) Develop PI Plan	X	
▪ (a) Develop Media Outreach Plan	X	
▪ (b) Develop Initial Stakeholders Group List	X	
▪ (b) Develop Initial Plan for PI Activities	X	
▪ (a,b) Determine Need for and Magnitude of Contractor Incentives		X

(a) Update Stakeholders List

- Locate any existing stakeholder databases for the area
- Develop the list of stakeholders

Develop PI Activities Schedule

Complete the following and then include in the PI plan:

- Develop a list of tasks for the project based on the scope of work
- Identify target group(s) for each task
- Determine the purpose/goal of each task
- Determine the date/time frame by which each task should be completed
- Determine at what level the stakeholders will be involved

(a) Develop PI Plan

- Develop a PI plan that includes the following elements:
  - Project type
  - Design target dates
  - Design contacts
  - A brief project description that includes the following:
    - An overview of other projects in the area
    - Milestones
  - Key messages
  - Any commitments made from previous project phases
  - Design elements or considerations that could be influenced by PI
  - A communication plan
  - A list and schedule for PI activities (see below for details)
  - A list of group and individual project stakeholders

(a) Develop Media Outreach Plan

- Identify media outlets and primary contact(s)
- Determine the level of media outreach required
- Consider a press release announcing the approval of the environmental document

(b) Develop Initial Stakeholders Group List

(b) Develop Initial Plan for PI Activities

(a, b) Determine Need for and Magnitude of Contractor Incentives

Incentives are based on potential impacts to businesses, commuters, and residents:

- Consider the makeup of the stakeholder committee
- Estimate the cost of the incentive program

21I Revise/Implement Public Involvement Plan

Overview

Based on 11I, enhance or implement the project's PI plan to prepare for design. Activities during this phase set the stage for efficient and effective public outreach.

Deliverables

- ☐ Logo/Identity Templates
- ☐ Business Cards
- ☐ Website/Summary Page
- ☐ Public Meeting Materials and Summaries
- ☐ Outreach Materials
- ☐ Comment Forms and Reports
- ☐ Correspondence Records with Public/Stakeholders
- ☐ PI Report(s)

Distribution

- ☐ Region PIM
- ☐ Stakeholders (As Needed)
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region PIM (Review)	Consultant (Production)
▪ (a) Develop Project Identity and Branding		X
▪ (a) Develop and Maintain Project Website and/or Summary Page		X
▪ (a) Develop Stakeholder Committee (If Needed)		X
▪ (a) Design, Produce, and Distribute Project Outreach Materials		X
▪ (a) Attend Public Activities and Meetings to Provide Project Information		X
▪ (a) Communicate with Stakeholders		X
▪ (a) Compile PI Reports		X
▪ (b) Update Stakeholders List		X
▪ (a) Update PI Activities Schedule		X
▪ (b) Update PI Plan		X

(a) Develop Project Identity and Branding

- Develop a project logo
- Develop project identity templates
- Develop project business/contact cards

- Develop other outreach and branding materials (e.g., door hangers, fact sheets, magnets, or postcards)

(a) Develop and Maintain Project Website and/or Summary Page

- Develop a project website and link to the appropriate web pages and servers
- If no website is developed, send regular updates to UDOT personnel

(a) Develop Stakeholder Committee (If Needed)

- Determine potential members
- Develop a plan for meetings

(a) Design, Produce, and Distribute Project Outreach Materials

- Develop and hand out information sheet(s) to stakeholders
- Develop and send electronic news updates to news agencies (e.g., local paper or special publications)
- Develop and mail newsletters to stakeholders

(a) Attend Public Activities and Meetings to Provide Project Information

- Prepare and present project information to city councils, chambers of commerce, neighborhood meetings, etc.

(a) Communicate with Stakeholders

- Respond to and document stakeholder comments
- Provide updates for project milestones to interested stakeholders/general public
- Hold one-on-one meetings with stakeholders
- Provide the *Partners for the Road Ahead Guide* to businesses to help them through the construction process

(a) Compile PI Reports

- Compile report(s) for the project that include the following:
  - An overview of PI tasks
  - Copies of all stakeholder correspondence and communication (e.g., emails, letters, or phone logs)
  - Copies of outreach materials
- Meeting materials and summaries

(b) Update Stakeholders List

- Locate any existing stakeholder databases for the area
- Develop the list of stakeholders

(a) Update PI Activities Schedule

Include the following in the PI plan:

- Develop a list of tasks for the project based on the scope of work
- Identify target group(s) for each task
- Determine the purpose/goal of each task
- Determine the date/time frame by which each task should be completed
- Determine at what level the stakeholders will be involved

(b) Update PI Plan

- Develop a PI plan that includes the following elements:
  - Project type
  - Design target dates
  - Design contacts
  - A brief project description that includes the following:
    - An overview of other projects in the area
    - Milestones
  - Key messages
  - Any commitments made from previous project phases
  - Design decisions to be influenced by PI
  - A communication plan
  - A list and schedule for PI activities (see below for details)
  - A list of group and individual project stakeholders

(b) Update Media Outreach Plan

- Identify media outlets and primary contact(s)
- Determine the level of media outreach required
- Consider a press release announcing the approval of the environmental document

25I Implement Public Outreach

Overview

Determine the public outreach efforts needed for the project, including a media outreach plan. Write and distribute press releases. The releases should provide the project overview, scope, schedule, and project team contact information. Also create any additional press releases needed for other project milestones as requested by the Region PIM and/or the UDOT Communications Office.

Deliverables

- ☐ Media Contact List
- ☐ Press Releases

Distribution

- ☐ UDOT Communications Office
- ☐ UDOT Region PIM

Task	Responsible Party	
	Activity Leader	
	Region PIM (Review)	Consultant (Production)
▪ Identify Primary Media Contacts		X
▪ Assist with Creating and Distributing Press Release Information to Local and Regional Media		X

Identify Primary Media Contacts

Identify local and regional print, television, and radio contacts for project information distribution.

Assist with Creating and Distributing Press Release Information to Local and Regional Media

As needed, write press releases for project milestones. Distribute to the Region PIM or the UDOT Communications office to be distributed to publications.

- Draft the press release that notifies the public of the start of the project and provides project team contact information
- Draft additional press releases as requested by the Region Project Manager/PIM

31I Revise/Implement Public Involvement Plan

Overview

Revise the PI plan (if needed) to reflect any project scope modifications.

- (a) reevaluate and begin stakeholder meetings
- (b) implement PI plan

Deliverables

- ☐ (b) Business Cards
- ☐ (b) Website
- ☐ (b) Committee Meeting Materials and Summaries
- ☐ (b) Public Meeting Materials and Summaries
- ☐ (b) Outreach Materials
- ☐ (b) Comment Forms and Reports
- ☐ (a, b) PI Report(s)
- ☐ (a) Meeting Summaries from Stakeholder Committee Meetings

Distribution

- ☐ Region PIM
- ☐ Stakeholders (As Needed)
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region PIM (Review)	Consultant (Production)
▪ (b) Update Project Identity and Branding		X
▪ (b) Develop and Maintain Project Website and/or Summary Page		X
▪ (b) Develop the Stakeholder Committee (If Needed)		X
▪ (b) Design, Produce, and Distribute Project Outreach Materials		X
▪ (a, b) Attend Public Activities and Meetings to Provide Project Information		X
▪ (a, b) Communicate with Stakeholders		X
▪ (a, b) Compile PI Reports		X
▪ (a, b) Update Stakeholders List		X
▪ (a, b) Meet with Residents and Businesses Affected by Project Activities		X

(b) Update Project Identity and Branding

- Develop a project logo
- Develop project identity templates

- Develop project business/contact cards
- Develop other outreach and branding materials (e.g., door hangers, fact sheets, magnets, or postcards)

(b) Develop and Maintain Project Website and/or Summary Page

- Develop a project website and link to the appropriate web pages and servers
- If no website is developed, send regular updates to UDOT personnel

(b) Develop the Stakeholder Committee (If Needed)

- Determine potential members
- Develop a plan for meetings

(b) Design, Produce, and Distribute Project Outreach Materials

- Develop and hand out information sheet(s) to stakeholders
- Develop and send electronic news updates to news agencies (e.g., local paper and special publications)
- Develop and mail newsletters to stakeholders

(a, b) Attend Public Activities and Meetings to Provide Project Information

- Prepare and present project information to city councils, chambers of commerce, neighborhood meetings, etc.

(a, b) Communicate with Stakeholders

- Respond to and document stakeholder comments
- Provide updates for project milestones to interested stakeholders/general public
- Hold one-on-one meetings with stakeholders
- Provide the *Partners for the Road Ahead Guide* to businesses to help them through the construction process

(a, b) Compile PI Reports

- Compile report(s) for the project that include the following:
  - An overview of PI tasks
  - Copies of all stakeholder correspondence and communication (e.g., emails, letters, and phone logs)
  - Copies of outreach materials
  - Meeting materials and summaries

(a, b) Update Stakeholders List

- Locate any existing stakeholder databases for the area
- Develop the list of stakeholders

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(a, b) Meet with Residents and Businesses Affected by Project Activities

- Hold a public/stakeholder meeting or distribute project information door-to-door

33I Conduct Public Hearing

Overview

Conduct the public hearing to provide the public with an opportunity to comment on the categorical exclusion document.

Deliverables

- ☐ Advertisement and/or Legal Notice for Opportunity for Public Hearing
- ☐ Meeting Materials and Displays
- ☐ Summary of Comments

Distribution

- ☐ 37Y
- ☐ Region PIM

Task	Responsible Party		
	Activity Leader		
	Region PIM (Review)	Region Environmental Manager	Project PIM
▪ Determine Whether to Advertise for Opportunity for Public Hearing or to Hold Public Hearing		X	
▪ Prepare for Hearing			X
▪ Hold Public Hearing			X
▪ Prepare Summary of Comments			X

Determine Whether to Advertise for Opportunity for Public Hearing or to Hold Public Hearing

Prepare for Hearing

- Determine the location of the hearing
- Provide 30 days notice for invitation and place legal notice in the newspaper
- Provide a court recorder for comments
- Provide a 30 day comment period and provide notice
- Make the environmental document available at public places for 30 days of public review
- Develop meeting materials and displays

Hold Public Hearing

Prepare Summary of Comments

51I Revise/Implement Final Public Involvement Plan

Overview

Revise/implement the PI plan to better reflect the final project scope. Compile the final PI reports for Design Phase.

Deliverables

- ☐ Business Cards
- ☐ Website/Summary Page
- ☐ Committee Meeting Materials and Summaries
- ☐ Public Meeting Materials and Summaries
- ☐ Outreach Materials
- ☐ Comment Forms and Reports
- ☐ Correspondence Records with Public/Stakeholders
- ☐ PI Report(s)

Distribution

- ☐ Project File
- ☐ Region PIM

Task	Responsible Party	
	Activity Leader	
	Region PIM (Review)	Consultant (Production)
▪ Update Project Identity and Branding		X
▪ Update or Initiate Project Website/Summary Page		X
▪ Meet with Residents and Businesses Affected by Project Activities		X
▪ Organize and Facilitate Stakeholder Committee		X
▪ Attend Public Activities and Meetings to Provide Project Information		X
▪ Design, Produce, and Distribute Project Outreach Materials		X
▪ Develop Comment Forms		X
▪ Conduct Community Open Houses/Public Meetings		X
▪ Conduct One-on-One Meetings/Business Involvement		X
▪ Communicate with Stakeholders		X
▪ Compile PI Reports		X
▪ Determine Need for and Magnitude of Contractor Incentives	X	

Update Project Identity and Branding

- Develop a project logo
- Develop project identity templates

- Develop project business/contact cards

Update or Initiate Project Website/Summary Page

- Develop a project website and connect with the state and local government web pages
- If no website is developed, send regular updates to the UDOT website personnel to be included on UDOT's project summary page

Meet with Residents and Businesses Affected by Project Activities

- Hold a public/stakeholder meeting or distribute project information door-to-door

Organize and Facilitate Stakeholder Committee

- Develop a committee and invite stakeholders to participate
- Plan and conduct stakeholder committee meetings

Attend Public Activities and Meetings to Provide Project Information

- Prepare and present project information to city councils, chambers of commerce, neighborhood meetings, etc.

Design, Produce, and Distribute Project Outreach Materials

- Develop and hand out information sheet(s) to stakeholders
- Develop and send electronic news updates to news agencies (e.g., local paper and special publications)
- Develop and mail newsletters to stakeholders

Develop Comment Forms

- Develop and distribute comment forms via email and hard copy (when requested)
- Develop a comment form report and distribute to the project team

Conduct Community Open Houses/Public Meetings

- Prepare materials for the meeting
- Place meeting materials on the project website (if available)

Conduct One-on-One Meetings/Business Involvement

- Hold one-on-one meetings with stakeholders
- Provide the *Partners for the Road Ahead Guide* business guide to businesses to aid them through the roadway construction process

Communicate with Stakeholders

- Respond to and document stakeholder comments

- Provide regular email updates regarding the project to interested stakeholders/general public

Compile PI Reports

- Compile report(s) for the project that include the following:
  - An overview of PI tasks
  - Copies of all stakeholder correspondence and communication (e.g., emails, letters, and phone logs)
  - Copies of outreach materials
  - Meeting materials and summaries

Determine the Need for and Magnitude of Contractor Incentives

Determine the need for a contractor incentive based on potential impacts to businesses, commuters, and residents:

- Consider the makeup of the stakeholder committee
- Estimate the cost of the incentive program

53I Determine Construction Public Involvement Efforts

Overview

Public involvement efforts will be determined by the level of impact that the construction project has on the stakeholders. Estimate the level of impact, determine whether a consultant is needed, and develop the scope of work for the project.

Deliverables

- □ Scope of Work

Distribution

- □ 51Z

Task	Responsible Party	
	Activity Leader	
	Region PIM	Consultant
▪ Determine Level of Project Impact and PI Needs	X	
▪ Develop Scope of Work	X	

Determine Level of Project Impact and PI Needs

Consider the following when determining the level of impact on the project stakeholders:

- Location
- Project Duration
- Type of Construction
- Makeup of Stakeholder Base

Develop Scope of Work

Create a scope of work for the project based on the established template.

55I Retain Construction Public Involvement Consultant

Overview

This activity outlines the process for hiring a PI consultant.

Deliverables

- ☐ Negotiated Contract

Distribution

- ☐ PIM
- ☐ Project Manager
- ☐ Consultant Services or Procurement Administrator (If Applicable)

Task	Responsible Party		
	Activity Leader		
	Region PIM	Consultant Services Administrator (CSA)	Consultant
▪ Determine Consultant Retention Method	X		

Determine Consultant Retention Method

Obtain a consultant through one of the following:

- Consultant Services
- Procurement Bid
- Procurement On-Call

71I Create Construction Public Involvement Plan

Overview

Create a PI plan based on the UDOT template that includes key messages and a schedule tailored for the project. The PI plan will define the project's stakeholders, the commitments made to stakeholders in previous phases, a project team communication plan, and a media outreach for the project if needed.

Deliverables

- ☐ PI Plan Including PI Activities Schedule
- ☐ Stakeholder Database
- ☐ Media Outreach Plan

Distribution

- ☐ 79X (Supplemental Specification Only)
- ☐ 71Z
- ☐ Project Manager
- ☐ Region PIM
- ☐ Project File

Task	Responsible Party		
	Activity Leader		
	Region PIM (Review)	Consultant (Production)	Project Manager
▪ Develop PI Plan		X	
▪ Develop Plan for Media Outreach		X	
▪ Write Supplemental Specification for Contractor Incentive		X	

Develop PI Plan

- Develop a PI plan based on the established template

Develop Plan for Media Outreach

- Identify media outlets and primary contact(s)
- Determine project messaging

Write Supplemental Specification for Contractor Incentive

- Determine the need for a contractor incentive
- Determine the amount of the incentive award
- Determine the process for administering the incentive award
    - Outline the evaluation periods and corresponding percentages

11Q Assess Existing Hydraulic Conditions

Overview

Review existing conditions and develop recommendations for improvements.

Deliverables

- ☐ Preliminary Drainage Summary

Distribution

- ☐ Project File
- ☐ Region Hydraulics Engineer
- ☐ 13R

Task	Responsible Party Activity Leader Hydraulics Design Engineer
▪ Obtain As-Built Info	X
▪ Conduct Drainage Conditions Field Review	X
▪ Meet with Maintenance Onsite	X
▪ Develop Design Criteria	X
▪ Evaluate Existing Facilities	X
▪ Identify New Facilities	X
▪ Provide Preliminary Drainage Summary to 13R	X

Obtain As-Built Info

Obtain as-built information from the following possible sources:

- Local government infrastructure
- Irrigation companies
- UDOT
- Etc.

Conduct Drainage Conditions Field Review

The field review is to assess the location, material type, geometry, and condition of existing drainage structures. Evaluate the following:

- Existing drainage patterns
  - Bridges (specifically, assess the scour potential of floodplain encroachments)
- Existing drainage problems (e.g., ponding and excessive spread)
- Storm drain systems and connectivity

- Culverts
  - Determine the following:
    - Suitability for extension
    - Suitability for rehabilitation
    - Need for replacement
- Outfall locations
- Detention/retention ponds
- Locations with scour or erosion problems
- Conveyance channels and ditches
- Natural channels and bank erosion issues
- Energy dissipators
- Flow measurement devices
- Irrigation facilities and connectivity
- Permitting concerns

Meet with Maintenance Onsite

- Meet with maintenance personnel onsite to identify drainage problems

Develop Design Criteria

Determine the governing criteria for the project's hydraulic design by referring to UDOT's *Drainage Manual of Instruction*.

Evaluate Existing Facilities

- Determine the capacity needed for each drainage facility (i.e., perform hydrologic calculations)
- Analyze existing hydraulic facilities for suitability to convey calculated flows
- Recommend improvements based on the capacity and physical condition of existing facilities

Identify New Facilities

- Estimate the approximate size and location of the new facilities required

Provide Preliminary Drainage Summary to 13R

The Preliminary Drainage Summary will include the following:

- Existing drainage conditions summary
- Location and size of improvements required
- Construction phasing and limitations
- Preliminary quantities and unit costs
- Updated design schedule

21Q Initial Roadway Drainage and Structure Hydraulics

Overview

Based upon decisions made in 19V and the *UDOT Drainage Manual of Instruction*, provide the initial roadway drainage and/or any structure hydraulics.

Deliverables

- ☐ Initial Drainage Design Summary for 21R
- ☐ Submittals to Central Hydraulics as Necessary (e.g., For Major Structure Hydraulic Designs)

Distribution

- ☐ Project File
- ☐ Region Hydraulics Engineer
- ☐ 21R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Develop Hydrologic Evaluation	X
▪ Provide Hydraulic Analysis	X
▪ Design Storage Facilities	X
▪ Conduct Conflict Analysis	X
▪ Provide Initial Drainage Design Concept Summary to 21R	X

Develop Hydrologic Evaluation

Develop hydrology and flows for each feature.

Provide Hydraulic Analysis

Based upon criteria for the project hydraulic design established in 11Q, do the following:

- Layout initial storm drainage and other drainage systems, including potential detention basin sites
- Determine the initial layout for minor hydraulic structures
- Finalize hydraulic analyses to determine opening requirements for large hydraulic structures and/or bridges
- Evaluate bridge scour if applicable
- Evaluate sediment transport

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Design Storage Facilities

Evaluate storage needs and determine preliminary layout of storage facilities.

Conduct Conflict Analysis

- Identify potential conflicts with other design elements
- Identify potential conflicts with existing and proposed utilities
- Identify design elements inside roadway clear zone
- Identify design elements outside the project ROW

Provide Initial Drainage Design Concept Summary to 21R

The summary will include the following:

- Locations and types of drainage improvements required
- Location of potential conflicts and conflict resolution options
- Preliminary quantities and unit costs

23Q Initial Irrigation Design

Overview

Based upon decisions made in 19Vand the *UDOT Drainage Manual of Instruction*, layout the initial irrigation design.

Deliverables

- ☐ Initial Irrigation Design Summary for 21R

Distribution

- ☐ Project File
- ☐ Region Hydraulics Engineer
- ☐ 21R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Meet with Irrigation Company	X
▪ Develop Irrigation System Layout	X
▪ Provide Initial Irrigation Design Summary to 21R	X

Meet with Irrigation Company

- Obtain information regarding the irrigation system operation and connectivity by meeting with irrigation company officials and/or ditch masters
- Obtain operational flows (if available) and design criteria
- Determine requirements for agreements

Develop Irrigation System Layout

- Place diversion structures
- Layout connection pipes and ditches
- Size pipes and ditch geometry
- Evaluate hydraulic performance

Provide Initial Irrigation Design Summary to 21R

Summary will include the following:

- Location and initial sizing of the required irrigation improvements
- Location of the potential conflicts and conflict resolution options

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- Preliminary quantities and unit costs

31Q Develop Roadway Drainage and Structure Hydraulics

Overview

Based upon decisions made in 29V and the *UDOT Drainage Manual of Instruction*, develop the roadway drainage and/or open channel drainage features.

Deliverables

- ☐ Hydraulic Design

Distribution

- ☐ Project File
- ☐ Region Hydraulics Engineer
- ☐ 31R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Finalize Hydraulic Analysis	X
▪ Prepare Initial Hydraulics Report	X
▪ Develop Storm Drainage Design	X
▪ Develop Structures Hydraulic Design	X

Finalize Hydraulic Analysis

- Create hydraulic models of the project features

Prepare Initial Hydraulics Report

- Submit for approval

Develop Storm Drainage Design

- Establish rim elevations for catch basins and diversion structures
- Establish the vertical profile for pipes and ditches
- Evaluate the earthwork for storage facilities and conveyance channels

Develop Structures Hydraulic Design

- Design scour protection/remediation measures
- Design bank scour mitigation measures
- Design stream alterations/restorations

35Q Develop Irrigation Design

Overview

Based on decisions made in 19V and the *UDOT Drainage Manual of Instruction*, finalize the layout of irrigation features.

Deliverables

- ☐ Final Irrigation Design

Distribution

- ☐ Project File
- ☐ Region Hydraulics Engineer
- ☐ 21R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Develop Irrigation Design	X
▪ Design Hydraulic Details	X

Develop Irrigation Design

- Establish rim elevations for diversion structures
- Establish vertical profile of irrigation pipes and ditches
- Re-establish delivery points and ensure hydraulic performance for design flow and operational head

Design Hydraulic Details

- Design diversion features including structures and gates
- Design flow measurement devices
- Design inverted siphon features

51Q Develop Drainage/Irrigation Plan Sheets

Overview

Following *UDOT CADD and Plan Sheet Standards*, prepare drainage and irrigation plan set.

Deliverables

- ☐ Drainage and Irrigation Plan Set
- ☐ Updated Quantities

Distribution

- ☐ Project File
- ☐ 51R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Incorporate Revisions Identified in 39V	X
▪ Finalize Hydraulics Report	X
▪ Develop Drainage and Irrigation Plan Sheets	X

Incorporate Revisions Identified in 39V

Revise the drainage and irrigation design, quantities, and Engineer's Estimate based on the outcome of 39V. Provide the updated quantities and cost estimate to 51R.

Finalize Hydraulics Report

Finalize hydraulics report and include necessary drainage elements and data for the project.

Develop Drainage and Irrigation Plan Sheets

Follow the current CADD standards and the *UDOT CADD and Plan Sheet Standards*. Do not prepare summary sheets at this time.

71Q Develop Drainage/Irrigation Project Documents

Overview

Finalize the drainage and irrigation plans and create summaries. Prepare and assemble drainage and irrigation project documents, including plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- ☐ Hydraulic Project Documents

Distribution

- ☐ Project File
- ☐ Central Hydraulics Section
- ☐ 71R

Task	Responsible Party Activity Leader Hydraulic Design Engineer
▪ Finalize Drainage/Irrigation Plans	X
▪ Finalize Hydraulic Report	X
▪ Develop Summary Sheets	X
▪ Develop Specifications	X
▪ Develop Quantities and Unit Costs	X

Finalize Drainage/Irrigation Plans

- Incorporate comments from 69V
- Finalize the hydraulic calculations
- Develop the detail sheets

Finalize Hydraulic Report

- Update the hydraulics report (as necessary)

Develop Summary Sheets

- Quantify all drainage/irrigation design elements and tabulate in the summary sheets

Develop Specifications

- Develop specifications for the work or products not covered in standard specifications
- Submit specifications to 71R

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Develop Quantities and Unit Costs

- Submit updated quantities and unit costs to 71R

11R Develop Project Design Criteria (PDC)

Overview

Develop the PDC.

Deliverables

- ☐ PDC Form

Distribution

- ☐ Project File
- ☐ Project Design Engineer
- ☐ Region Preconstruction Engineer

Task	Responsible Party		
	Activity Leader		
	Design Engineer	Region Preconstruction Engineer	Phase Leader
▪ Develop PDC	X		
▪ Update the Total Project Cost Estimate	X		
▪ Coordinate with Region Preconstruction Engineer for PDC Approval	X		

Develop PDC

Following guidelines in the *UDOT Roadway Design Manual of Instruction*, develop the PDC. Obtain (or review from the Concept Report) information including design speed, design vehicle, design year, terrain, and Project Traffic Report. Use this data to complete the PDC for the project. Using the form, develop criteria for critical elements and design waivers.

Update the Total Project Cost Estimate

If the concept cost estimate was created during the concept phase, update the estimate. This form will become the total project cost estimate and will be updated throughout design. If no estimate exists, download the Concept Cost Estimate form and create the Total Project Cost Estimate.

The Phase Leader will update ePM Screen 505 and notify the Project Manager with any changes to project totals.

Coordinate with Region Preconstruction Engineer for PDC Approval

The Design Engineer will work with the Phase Leader to ensure the PDC meets the proper standards and requirements and submits the form to the Region Preconstruction Engineer for approval.

13R Develop First Cut Geometry

Overview

Following approved PDC, develop preliminary horizontal and vertical alignments and intersection layouts.

Deliverables

- ☐ 19V Package
- ☐ Full-Size Scroll Plot Compiling All Data and Design to Date

Distribution

- ☐ Project File
- ☐ Project Design Engineer

Task	Responsible Party	
	Activity Leader	
	Project Design Engineer	Phase Leader
▪ Develop Strategy to Address Deficiencies Identified in 15R	X	
▪ Develop Initial Alignment	X	
▪ Develop Initial Typical Section	X	
▪ Update Total Project Cost Estimate	X	
▪ Update ePM Screen 505 Compiling Summaries	X	
▪ Prepare for 19V	X	

Develop Strategy to Address Deficiencies Identified in 15R

- Identify the improvements needed to correct deficiencies
- Establish the initial quantities and unit cost
- Update the design schedule

Develop Initial Alignment

Following the PDC, do the following:

- Develop the initial horizontal alignments of main and secondary roads
- Develop the initial vertical alignments of main and secondary roads

Develop Initial Typical Section

- Develop the initial typical section
- Model the initial templates
- Establish the initial footprint

- Establish the initial roadway quantities and unit costs

Update Total Project Cost Estimate

- Update the project cost estimate
  - Obtain updated design quantities and unit costs from other disciplines

Update ePM Screen 505 Compiling Summaries

- Obtain construction costs estimates from other disciplines
- Compile summary reports into a package

Prepare for 19V

- Prepare a package including the following:
  - Compiled summary reports
  - Initial Total Project Cost Estimate
  - Project estimate ePM Screen 505
  - A .pdf version of the scroll plot showing the initial data collected
- Distribute the package to all meeting attendees a week prior to the 19V meeting
- Plot a full-size scroll plot that shows the initial collected data and bring to the 19V meeting

15R Assess Existing Roadway Conditions

Overview

Obtain data and conduct a field review to assess the existing roadway conditions.

Deliverables

- ☐ Existing Conditions Technical Memo

Distribution

- ☐ Project File
- ☐ Project Design Engineer
- ☐ Phase Leader

Task	Responsible Party Activity Leader Project Design Engineer
▪ Evaluate Existing Conditions	X
▪ Develop Existing Conditions Technical Memorandum	X

Evaluate Existing Conditions

- Obtain as-built info
- Obtain crash data and the Operational Safety Report (OSR) and identify safety needs
- Conduct a field review to confirm OSR information and identify any additional deficiencies, which could include, but are not limited to, the following:
  - Geometric
  - Signing
  - Striping
  - Guardrail
- Meet with maintenance onsite

Develop Existing Conditions Technical Memorandum

- Compile existing data
  - Obtain data from all other disciplines
- Summarize all deficiencies

Potential Contacts

Agency	Information Requested
UDOT Permits Officer	Access Permit (Consultant)
Private Property Owners	Permission to Enter (If Applicable)

17R Assess Multi-Modal Needs

Overview

Every effort should be made to accommodate pedestrian, bike, and transit needs. Determine the appropriate level of accommodations for the project.

Deliverables

- ☐ Bicycle and Pedestrian Accommodations
- ☐ Strategy to Accommodate Multi-Modal Needs
- ☐ Initial Quantities and Unit Costs

Distribution

- ☐ Project File
- ☐ Project Design Engineer
- ☐ Bicycle and Pedestrian Coordinator

Task	Responsible Party Activity Leader Design Engineer
▪ Review Concept Report	X
▪ Coordinate with Bicycle and Pedestrian Coordinator	X
▪ Review Master Plans	X
▪ Coordinate with UTA	X
▪ Develop Quantities and Unit Costs	X

Review Concept Report

Review the project Concept Report including information on the following: bike, trail, pedestrian, and transit. If not included in the concept report, complete UDOT's Bicycle and Pedestrian Accommodations form. In addition, begin to consider multi-modal needs during the construction phase of the project.

Coordinate with Bicycle and Pedestrian Coordinator

- Review the bicycle and pedestrian accommodation plans for the project area to obtain current information.

Review Master Plans

- Obtain bike/pedestrian master plans from all applicable organizations, e.g., metropolitan planning organizations (MPOs) and state and local governments

- Obtain recreational plans from all applicable organizations, e.g., Rails to Trails, Greenways, state and local governments, and national parks

Coordinate with UTA

- Review existing and planned facilities within the project area

Develop Quantities and Unit Costs

- Develop a strategy to accommodate multi-modal needs
- Establish the initial quantities and unit costs
- Provide to 13R

21R Model Initial Roadway Design

Overview

Based on decisions from 19V, model the initial roadway design. This activity will include major modeling work. Subsequent modeling activities will refine the model to include items such as guardrail slope flattening or curb returns.

Deliverables

- ☐ 29V Package
- ☐ Full-Size Scroll Plot Compiling All Data and Design to Date

Distribution

- ☐ Project File
- ☐ 29V

Task	Responsible Party	
	Activity Leader	
	Project Design Engineer	Phase Leader
▪ Incorporate Revisions Identified in 19V	X	
▪ Review and Update PDC	X	
▪ Refine Roadway Model	X	
▪ Analyze Roadway Design	X	
▪ Provide Information for 29V	X	
▪ Update Total Project Cost Estimate	X	
▪ Prepare for 29V	X	

Incorporate Revisions Identified in 19V

Revise the output of the project identification activities based on the outcome of 19V. For example, revise the horizontal alignment based on wetlands identified during the project identification meeting.

Review and Update PDC

Based on comments from 19V, review and update the PDC. If design exceptions are necessary, begin 23R.

Refine Roadway Model

- Develop templates to represent specific project circumstances. These should include, but are not limited to, the following:
  - Number of lanes and width
  - Superelevations
  - Turn bays (based on assumed lengths)

        - Shoulders and bike lanes
        - Curb and gutter
        - Sidewalks and park strips
        - Sideslope treatments
            - Clear zones
            - Retaining walls
- Refine the roadway model based on templates
    - Create design surfaces
    - Evaluate cut/fill lines
        - Identify additional ROW impacts
        - Identify additional utility impacts
        - Other unanticipated impacts
- Evaluate cross sections
- Calculate earthwork quantities
- As necessary, modify the model based on input from other disciplines, which could include the following:
    - Traffic and Safety
    - Environmental
    - ROW
- Produce a clean version of the roadway design in MicroStation

Analyze Roadway Design

- Compliance with the PDC
    - Identify additional design exceptions and waivers
- Surface drainage
    - Coordinate with drainage design
    - Reverse superelevations
    - Analyze flat spots
- Feasibility of driveway connections
- Traffic signal sight distance
- Material availability identification
    - Identify commercial material sources
    - Identify state-owned pits
    - Investigate quality of material from the possible materials sources (If applicable)
    - Identify clearances necessary to use the possible materials sources (If applicable)

Provide Information for 29V

Develop the following materials for 29V:

- Scroll plots showing all disciplines
- Typical sections
- Updated quantities and unit costs
- Conceptual construction phasing and limitations for constructability check

- Updated design schedule and Total Project Cost Estimate

Update Total Project Cost Estimate

- Update project cost estimate
  - Obtain updated design quantities and unit costs from other disciplines
- Update ePM Screen 505

Prepare for 29V

- Prepare a package that includes the following:
  - Updated Total Project Cost Estimate
  - Project budget ePM Screen 505
  - A .pdf version of the scroll plot showing the current state of the design
- Distribute the package to all meeting attendees one to two weeks prior to 29V
- Print full-size scroll plot(s) or prepare electronic design files that shows the current state of design to bring to 29V

23R Obtain Design Exception Approval

Overview

Based on the PDC, prepare design exception, design waiver, and/or design deviation requests and submit for approval.

Deliverables

- ☐ Approved Design Exceptions
- ☐ Approved Design Waivers
- ☐ Approved Design Deviations

Distribution

- ☐ Project File
- ☐ 21R
- ☐ Project Manager
- ☐ Region Preconstruction Engineer
- ☐ State Preconstruction Engineer

Task	Responsible Party			
	Activity Leader: Project Design Engineer	Project Manager	Region Preconstruction Engineer	State Preconstruction Engineer
▪ Update PDC	X			
▪ Complete Design Exception, Design Waiver, and Design Deviation Request	X			
▪ Submit Design Exceptions, Design Waivers, and Design Deviations for Approval	X			

Update PDC

- Update the PDC form and submit for re-signature

Complete Design Exception, Design Waiver, and Design Deviation Request

- The Design Exception form is located on UDOT's website.
- Examples of possible mitigation measures are listed in the *Roadway Manual of Instruction.*

Submit Design Exceptions, Design Waivers, and Design Deviations for Approval

Process the completed form for signatures.

31R Final Roadway Design

Overview

This activity will result in a completed design for the project. Based on decisions from 29V, refine the roadway model to include items like guardrail slope flattening, curb returns, and widening for overhead sign locations. Modify the design as necessary to include other discipline needs like drainage facilities, utilities, signal, signs, and ATMS.

Deliverables

- ☐ 39V Package

Distribution

- ☐ Project File
- ☐ 39V

Task	Responsible Party	
	Activity Leader	
	Design Engineer	Phase Leader
▪ Incorporate Revisions Identified in 29V	X	
▪ Finalize Roadway Design	X	
▪ Provide Information for 39V	X	
▪ Update Total Project Cost Estimate	X	
▪ Prepare for 39V	X	

Incorporate Revisions Identified in 29V

Revise the roadway design based on the outcome of 29V.

Finalize Roadway Design

- Design guardrail/barrier
  - Refer to the *AASHTO Roadside Design Guide* and UDOT Standard Drawings.
- Finalize templates including, but not limited to, the following:
  - Grading
    - Accommodate guardrail/barrier
    - Driveways/approaches
    - Curb returns
    - Cross streets
    - Accommodate drainage
    - Overhead sign locations
    - Retaining walls

        - Major and minor structures
    - Pavement section
    - Superelevation
    - Transitions
        - Gore areas
        - Lane widening
- Finalize the roadway model based on templates
    - Create design surfaces
    - Evaluate the cut/fill lines
        - Identify the additional ROW impacts
        - Identify the additional utility impacts
        - Identify other unanticipated impacts
- To ensure compatibility with their design, coordinate with other disciplines, which include, but are not limited to, the following:
    - Traffic and Safety
    - Environmental
    - Maintenance
    - ROW
    - Structures
    - Drainage
    - Utilities
    - Geotechnical (Get Information from the Geotechnical Report)
    - Multi-Modal
        - Coordinate with the State Multi-Modal Coordinator. Re-evaluate needs identified in 17R.
    - Environmental
        - Ensure mitigation measures are addressed in the design.
    - PI
        - Stakeholder commitments are addressed in the design.
- Design miscellaneous features including, but not limited to, the following:
    - Maintenance Access
    - Geotechnical Instrumentation Accommodations
    - Driveways
    - Fences
    - Fire Hydrants
    - Flatwork
    - Mailboxes
    - Pedestrian Access Ramps
    - Raised Islands
    - Removals
    - Trails
- Produce a clean version of the roadway design in MicroStation
    - Develop a roadway file
    - Develop typical sections

  - Develop profiles
  - Develop superelevation diagrams
- Calculate quantities

Provide Information for 39V

Develop materials for 39V:

- Scroll plots showing all disciplines
- Typical sections
- Updated quantities and unit costs
- Updated conceptual construction phasing and limitations for the constructability check
- Updated design schedule and Total Project Cost Estimate

Update Total Project Cost Estimate

- Update the Total Project Cost Estimate
  - Obtain updated design quantities and unit costs from other disciplines
- Update ePM Screen 505

Prepare for 39V

- Prepare a package including the following:
  - Updated Total Project Cost Estimate
  - ePM Screen 505
  - A .pdf version of the scroll plot(s) showing the current state of the design
- Distribute the package to all meeting attendees a week prior to 39V meeting
- Print full-size scroll plot(s) showing the current state of design to bring to the 39V meeting

35R Identify Overhead Sign Location

Overview

Locate appropriate sites for placement of overhead sign structures (if applicable).

Deliverables

- ☐ Overhead Sign Design Package
- ☐ Updated Engineer's Estimate

Distribution

- ☐ Project File
- ☐ 31R

Task	Responsible Party		
	Activity Leader: Project Design Engineer	Phase Leader	Structural Design Engineer
▪ Identify Sign Locations	X		
▪ Determine Cantilever or Full Span	X		
▪ Produce Cross-Section to Determine Vertical Clearance	X		
▪ Determine Barrier Needs/Foundation Protection	X		
▪ Determine Power Requirements for Lighting the Overhead Sign	X		
▪ Provide Information to 31R	X		

Indentify Sign Locations

Determine Cantilever or Full Span

Determine the placement and type of structure based on recommendations from the structural design engineer and the Structures Division requirements found in the *Structures Design and Detailing Manual*.

Produce Cross-Section to Determine Vertical Clearance

Provide vertical clearances in accordance with the Structures Division requirements. These requirements can be found in the *Structures Design and Detailing Manual*.

Determine Barrier Needs/Foundation Protection

Determine Power Requirements for Lighting the Overhead Sign

Coordinate with the local electrical utility company. Provide information to 35T.

2009 Design Network

Provide Information to 31R

Develop the design package for 31R and include the following:

- Overhead sign locations
- Updated quantities and unit costs

37R Develop Signing and Striping Design

Overview

Using the refined roadway model as a guide, develop the signing, and striping design for the project.

Deliverables

- ☐ Signing and Striping Design Package
- ☐ Region and State Approvals (where necessary)

Distribution

- ☐ Project File
- ☐ 31R

Task	Responsible Party	
	Activity Leader	
	Project Design Engineer	Region Traffic Engineer
▪ Develop Signing and Striping Design	X	
▪ Provide Information to 31R	X	

Develop Signing and Striping Design

Using UDOT Standard Drawings as well as the Federal Highway Administration (FHWA) and the *Manual of Uniform Traffic Control Devices* (MUTCD) as references, develop signing and striping design.

For signing design, do the following:

- Coordinate with the Region Traffic Engineer for approval of interstate guide signs by the State Traffic and Safety Division
- Review for compliance with MUTCD
- Consider signs that may be required outside of the project limits
- Replace, modify, or upgrade existing signs where necessary

For striping design, do the following:

- Base the striping plan on capacity analysis
- Design lane widths and intersection layouts from previous phases
- Note pavement marking type

Provide Information to 31R

Develop a design package for 31R and include the following:

2009 Design Network

- Signing and striping design
- Updated quantities and unit costs

51R Develop Roadway Plans

Overview

Following *UDOT Plan Sheet Standards*, prepare the roadway plan set.

Deliverables

- ☐ Roadway Plan Set
- ☐ Updated Quantities
- ☐ Total Project Cost Estimate

Distribution

- ☐ 69X
- ☐ Project file

Task	Responsible Party Activity Leader Project Design Engineer
▪ Incorporate Revisions Identified in 39V	X
▪ Develop Roadway Plans	X
▪ Update Total Project Cost Estimate	X

Incorporate Revisions Identified in 39V

Revise the roadway design, quantities, and Total Project Cost Estimate based on the outcome of 39V.

Develop Roadway Plans

Follow the current *UDOT CADD and Plan Sheet Standards* to generate the plan sheets. Do not prepare summary sheets at this time.

- For roadway plan sheets, do the following:
  - Clearly label horizontal alignment
  - Include the street names on mainline and cross streets
  - Ensure that the existing topography shows in proper grayscale
  - Label all structures with corresponding structure number
  - Correctly label curb radii
  - Show cut/fill lines for the mainline, ramps, and any side streets
  - Show the driveway lengths, widths, and pavement types
  - Label the tie-in with existing pavement
  - Identify where scuppers are required in sections of concrete barrier
  - Verify that the callouts are correctly placed and labeled

- For roadway profile sheets, do the following:
  - Show the alignment name on each profile sheet
  - Clearly annotate proposed vertical alignment
  - Ensure station limits match the plan sheet match lines exactly
  - Show existing and proposed elevations on the bottom axis
  - Label and identify the intersected streets, railroads, grade-separated structures, culverts, streams, etc.
  - Use proper InRoads preferences to conform to standards
  - Show superelevation at the top of the profile sheet
  - Label station and rates at all transition points

Update Total Project Cost Estimate

- Update the Total Project Cost Estimate
  - Obtain updated quantities and unit costs from other disciplines
- Update ePM Screen 505

53R Develop Signing and Striping Plans

Overview

Following *UDOT CADD and Plan Sheet Standards*, prepare the signing and striping plan set.

Deliverables

- ☐ Signing and Striping Plan Set
- ☐ Updated Quantities

Distribution

- ☐ Project File
- ☐ 51R Develop Roadway Plans

Task	Responsible Party Activity Leader Project Design Engineer
▪ Incorporate Revisions Identified in 39V	X
▪ Develop Signing and Striping Plans	X

Incorporate Revisions Identified in 39V

Revise the signing and striping design, quantities, and Engineer's Estimate based on the outcome of 39V. Provide the updated quantities and Engineer's Estimate to 51R.

Develop Signing and Striping Plans

Follow the current *UDOT CADD and Plan Sheet Standards* to generate the plan sheets. Do not prepare summary sheets at this time.

- For striping plan sheets, do the following:
  - Show the new alignment, stationing, and curve data.
  - Show the proposed design without cut/fill lines.
  - Label lane widths, taper locations and widths, and line types.
  - Label the beginning and ending of lines wherever possible.
  - Verify that the callouts are correctly placed and labeled.
- For signing plan sheets, do the following:
  - Show the proposed alignment and stationing.
  - Include the street names on mainline and cross streets.
  - Show the locations and existing signs that are to remain in place.
  - Show the proposed design and striping design. Do not show the existing topography or cut/fill lines.

- Correctly call out the proposed sign locations.

55R Design Overhead Sign Layout

Overview

Following current *UDOT CADD and Plan Sheet Standards*, design the overhead sign layout and submit for approval.

Deliverables

- ☐ Overhead Sign Layout for Approval

Distribution

- ☐ Project File
- ☐ Traffic and Safety
- ☐ Structures

Task	Responsible Party Activity Leader Project Design Engineer
▪ Design Overhead Sign Layout	X

Design Overhead Sign Layout

- Layout the sign message
- Determine the lighting requirements
- Submit the sign layout to the Traffic and Safety Division for approval
- Coordinate with the Central Structures for sign structure design
- Finalize electrical power needs for lighting and overhead signs

71R Develop Roadway Project Documents

Overview

Finalize the roadway plans and create summaries. Prepare and assemble roadway project documents, including plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- □ Roadway Project Documents

Distribution

- □ 79X

Task	Responsible Party Activity Leader Project Design Engineer
▪ Incorporate Revisions Identified in 69V	X
▪ Develop Roadway Project Documents	X
▪ Update Total Project Cost Estimate & Create Engineer's Estimate	X

Incorporate Revisions Identified in 69V

Revise the roadway plan sheets, quantities, and the Total Project Cost Estimate based on the outcome of 69V.

Develop Roadway Project Documents

- Follow the current *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate roadway summary sheets.
  - Customize Excel spreadsheets for the specific project
  - Coordinate with Region Materials on current conversion factors, rates, etc.
  - Show enough detail to support calculations
- Write roadway special provisions.
- Prepare the design deviations, if applicable.
- Provide the Roadway Project Documents to 79X.

Update Total Project Cost Estimate & Create Engineer's Estimate

- Update the Total Project Cost Estimate and create the Engineer's Estimate in PDBS
  - Obtain updated quantities and unit costs from other disciplines
- Update ePM Screen 505

73R Develop Signing and Striping Project Documents

Overview

Finalize the signing and striping plans and create summary sheets. Prepare and assemble the signing and striping project documents, including signing and striping plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- ☐ Signing and Striping Project Documents Review Package

Distribution

- ☐ Project File
- ☐ 71R

Task	Responsible Party Activity Leader Project Design Engineer
▪ Incorporate Revisions Identified in 69V	X
▪ Develop Signing and Striping Project Documents	X

Incorporate Revisions Identified in 69V

Revise the signing and striping plan sheets, quantities, and the Total Project Cost Estimate based on the outcome of the 69V.

Develop Signing and Striping Project Documents

- Follow the current UDOT CADD and Plan Sheet Standards and the *UDOT Summary Sheet Training Manual* to generate the signing and striping summary sheets.
  - Customize Excel spreadsheets for the specific project
  - Show enough detail to support calculations
- Write the signing and striping special provisions.
- Prepare design deviations, if applicable

Provide the Signing and Striping Project Documents to 71R.

11S Identify Preliminary Structure Type (Minor & Major)

Overview

Review the existing conditions and determine the physical requirements for any new structures. Develop a range of alternative structure types to fulfill the requirements. For structure rehabilitation projects, coordinate with the bridge operations to determine the level of effort required.

Deliverables

- ☐ Existing Structures Plans
- ☐ Preliminary Structure Type(s)
- ☐ Summary Report

Distribution

- ☐ Project File
- ☐ Bridge Operations Engineer
- ☐ Bridge Design Manager
- ☐ 13R
- ☐ Chief Railroad Engineer

Task	Responsible Party	
	Activity Leader	
	Bridge Design Engineer	Bridge Operations Engineer
▪ Request Existing Structures Plans	X	
▪ Meet with Bridge Operations	X	
▪ Evaluate Structure Type Options	X	
▪ Provide Preliminary Structures Summary to 13R	X	
▪ Coordinate with Railroad		X

Request Existing Structures Plans

- Request as-built drawings
- Request for Structural Inventory & Appraisal Sheets (SI&A)
- Request for Structures Recommendations Report or Concept Reports
- Assure that as-builts reflect the existing conditions (i.e., elements like all rehabs or widening are accounted for)

Meet with Bridge Operations

- Perform a field inspection of the structure
- Review the current structure conditions
- Review the recommended strategy and achieve concurrence

Evaluate Structure Type Options

For a new major structure and/or widening, do the following:

- Identify any hydraulic considerations (e.g., scour and channel migration)
- Identify the number of spans
- Determine the preliminary span lengths
- Determine the preliminary girder type
  - Take into account the project schedule and material availability
- Determine the preliminary structure depth
- Determine the preliminary bent and abutment locations
- Determine the preliminary abutment types
- Coordinate with the functional units for any special needs
  - ATMS conduits
  - Utility accommodations
  - Sign panel attachments
- Determine the construction phasing and limitations
  - Coordinate with the Phase Leader
- Explore innovative construction options like Accelerated Bridge Construction (ABC)
- Establish initial structural quantities and unit costs

For major structure rehabilitation, do the following:

- Determine the preliminary items of work
- Determine the construction phasing and limitations
  - Coordinate with the Phase Leader
- Develop a rehabilitation strategy
- Establish the initial structural quantities and unit costs
- Scour countermeasure needs

For new minor structures and/or extensions, do the following:

- Determine the preliminary box culvert type and size
- Determine the preliminary wall type, height, and length
- Establish the initial structural quantities and unit costs

For minor structures rehabilitation, do the following:

- Determine the preliminary items of work
- Determine the construction phasing and limitations
  - Coordinate with the Phase Leader
- Develop a rehabilitation strategy
- Establish the initial structural quantities and unit costs

Provide Preliminary Structures Summary to 13R

The Preliminary Structures Summary will include the following:

- Existing structure conditions summary
- Location of work (e.g., the location of the new structure, box culvert, or wall)
- Preliminary quantities and unit costs
- Construction phasing and limitations
- Updated design schedule and cost estimate

Coordinate with Railroad

Determine with the railroad company what structure types are feasible.

21S Develop Type Selection and Layout (TS&L) and Structures Strategy, Including Railroad Coordination (Bridge Only)

Overview

Determine bridge layout and geometry for design.

Deliverables

- ☐ Existing Bridge Drawings and Inspection Reports
- ☐ Structure Design Criteria
- ☐ Structure Cross-Section
- ☐ Seismic Strategy Report
- ☐ Preliminary Layout and Type Selection Report
- ☐ Preliminary Cost Estimate

Distribution

- ☐ 25S
- ☐ Project File
- ☐ Region Hydraulic Engineer (Draft Hydraulics/Scour Report)
- ☐ Railroad Companies (If Applicable)
- ☐ Structures Design Manager
- ☐ Chief Railroad Engineer (If Applicable)
- ☐ Region Utility and Railroad Coordinator (If Applicable)

Task	Responsible Party	
	Activity Leader: Phase Leader	Region Utility Coordinator
▪ Conduct Field Visit	X	
▪ Review Existing Bridge Drawings and Inspection Reports	X	
▪ Develop Structural Design Criteria	X	
▪ Develop Structure Cross-Section	X	
▪ Develop Seismic Strategy Report/Need to Retrofit Existing Structure	X	
▪ Develop Preliminary Layout and Type Selection Report	X	
▪ Develop Preliminary Engineer's Estimate	X	
▪ Discuss Structure Type, Track Configurations, and Clearances with Railroad Companies (If Applicable)		X

Conduct Field Visit

- Verify existing conditions, conflicts with utilities, environmental issues, hydraulics, geometry, and constraints. In regards to bridge widening, verify the slope protection, girder spacing, overhang conditions, ability to lengthen walls, and estimate the thickness of overlays.
- Evaluate staging areas and site access.
- Confirm inspection reports and findings. Quantify magnitude of repairs.
- Include the railroad representative where applicable.
- Take extensive photos of the bridge and surrounding area.

Review Existing Bridge Drawings and Inspection Reports

Identify existing fracture critical elements (e.g., pin and hanger systems or two girder systems). Confirm existing load ratings.

Develop Structural Design Criteria

Develop Structure Cross-Section

Develop Seismic Strategy Report/Need to Retrofit Existing Structure

Reference Section 6 of the *UDOT Structures Design and Detailing Manual*.

Develop Preliminary Layout and Type Selection Report

Develop Preliminary Engineer's Estimate

Include preliminary costs for the proposed structure and the repairs to the existing structure.

Discuss Structure Type, Track Configurations, and Clearances with Railroad Companies (If Applicable)

Where a railroad alignment crosses a bridge alignment, early coordination with the owner(s) of the railroad(s) is critical:

- Prepare the preliminary Situation and Layouts (S&Ls), which is marked clearly as such, to show the existing track configuration and the spacing perpendicular to the tracks.
- Discuss requirements with respect to the following items (other items may apply):
  - Vertical and horizontal clearances
  - Corrected track separations and future tracks
  - Structure type
  - Crash walls
  - Fencing and understructure lighting
  - Construction staging, shoring, soil stabilization, etc.
- Inform the railroad companies that they will have an opportunity for a final review of the S&Ls during 62S. But because this activity occurs later in the project, it is important that the railroads

are kept up to speed in the earlier stages to avoid impacts to the project schedule just before the *Plan Production Stage* is set to begin.

23S Develop TS&L and Structure Strategy, Including Railroad Coordination (Rehab, Box Culvert, Wall)

Overview

The purpose is to develop the draft TS&L sheets to ensure the compatibility between the structures, railroad, and roadway design.

Deliverables

- ☐ Existing Structure Drawings and Inspection Reports
- ☐ Structure Design Criteria
- ☐ Structure Cross-Section
- ☐ Seismic Strategy Report
- ☐ Preliminary Layout and Type Selection Report
- ☐ Preliminary Engineer's Estimate

Distribution

- ☐ 21R
- ☐ Project File
- ☐ Region Hydraulic Engineer (Draft Hydraulics/Scour Report)
- ☐ Railroad Companies (If Applicable)
- ☐ Structures Design Manager
- ☐ Chief Railroad Engineer (If Applicable)
- ☐ Region Utility and Railroad Coordinator (If Applicable)

Task	Responsible Party	
	Activity Leader	
	Bridge Design Manager	Bridge Design Engineer
▪ Conduct Field Visit	X	
▪ Review Existing Structure Drawings and Inspection Reports		X
▪ Develop Structural Design Criteria		X
▪ Provide Structure Cross-Section		X
▪ Develop Seismic Strategy Report/Need to Retrofit Existing Structure		X
▪ Develop Preliminary Layout and Type Selection Report		X
▪ Develop Preliminary Quantities and Unit Costs		X

2009 Design Network

Conduct Field Visit

Review Existing Structure Drawings and Inspection Reports

Develop Structural Design Criteria

Provide Structure Cross-Section

Develop Seismic Strategy Report/Need to Retrofit Existing Structure

Develop Preliminary Layout and Type Selection Report

Show ROW acquisition and easements.

Develop Preliminary Quantities and Unit Costs

Include preliminary costs for the proposed structure and the repairs to the existing structure. Provide information to 21R.

25S Develop Draft Situation and Layout (S&L) (Bridge Only)

Overview

The purpose is to develop the draft S&L sheets to ensure the compatibility between the structures and roadway design.

Deliverables

- ☐ Situation and Layout Sheets
- ☐ Draft Hydraulics/Scour Report

Distribution

- ☐ 21R
- ☐ Project File
- ☐ Region Hydraulic Engineer (Draft Hydraulics/Scour Report)
- ☐ Structures Design Manager

Task	Responsible Party Activity Leader Bridge Design Engineer
▪ Submit Draft Hydraulic/Scour Report	X
▪ Develop Draft S&L Sheets	X

Submit Draft Hydraulic/Scour Report

Submit draft hydraulic/scour report to the Region Hydraulic Engineer or Central Hydraulic Engineer as needed.

Develop S&L Sheets

Refer to the Structures S&L Checklist in the *UDOT Structures Design and Detailing Manual*.

31S Initial Structure Rehab Design

Overview

Develop list of expected structural repair work items.

Deliverables

- ☐ Inspection Reports
- ☐ Existing Structure Plans

Distribution

- ☐ 31R
- ☐ Project File
- ☐ Structures Design Manager

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Request Structure Number	X
▪ Develop Repair Lists	X
▪ Develop Sketches	X
▪ Review Work Items	X

Request Structure Number

Submit a structure number request for rehabilitations to a major structure through the UDOT Structures Design and Bridge Operations website.

Develop Repair Lists

Create a list of required and desired structural repairs.

Develop Sketches

Generate rough drawings for the anticipated repair work to facilitate general discussion and over the shoulder review. For deck rehabilitations, the drawing would consist of an S&L; for other repairs, the drawing would consist of copying the existing drawing(s) and calling out areas that need work and the type of effort required for that work.

Review Work Items

Coordinate anticipated work items with project team.

35S S&L for Minor Structures

Overview

Develop the S&L sheets for each drainage structure, fully coordinating with the roadway geometric and hydraulic requirements.

Deliverables

- ☐ S&L Sheets
- ☐ Structures Division Form SA-2
- ☐ Design Exception Approvals (if applicable)

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party Activity Leader Bridge Design Engineer
▪ Request Structure Number	X
▪ Develop S&L Sheets	X
▪ Develop Design Criteria	X
▪ Provide Constructability Review	X
▪ Identify Design Exceptions	X

Request Structure Number

Submit a structure number request for a box culvert or structure number request for headwalls and other drainage structures through the Structures Design and Bridge Operations website.

Develop S&L Sheets

Develop and submit S&Ls for final acceptance.

Develop Design Criteria

Provide Constructability Review

Verify that the structure can be reasonably constructed and determine a plausible staging scheme.

Identify Design Exceptions

If any design exceptions are required, submit approval request.

36S Update Sheet 1 (Bridge Only)

Overview

Based on comments received from 25S and 29V, update the bridge S&L sheets by incorporating any remaining changes to the roadway geometrics.

Deliverables

- ☐ Updated Bridge S&L Sheets

Distribution

- ☐ 39S
- ☐ Project File

Task	Responsible Party Activity Leader Bridge Design Engineer
▪ Request Structure Number	X
▪ Develop S&L Sheets	X

Request Structure Number

Submit a structure number request for a new bridge through the Structures Design and Bridge Operations website.

Submit a structure number request for structure widening.

Submit a structure number request for a local government agency bridge.

Develop S&L Sheets

Develop bridge S&L sheets in accordance with Section 3 of the *UDOT Structures Design Manual*.

Verify that the S&L sheets have been developed in accordance with the UDOT structures standards checklist.

Submit the S&Ls and associated documentation to the structures design manager for final acceptance.

37S S&L for Retaining Walls

Overview

Develop the S&L sheets for each wall, fully coordinating with the roadway, grading, and geotechnical requirements.

Deliverables

- ☐ Wall S&L Sheets

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Wall Design Engineer	Geotechnical Design Engineer
▪ Request Structure Number	X	
▪ Develop S&L Sheets	X	
▪ Provide Constructability Review	X	
▪ Identify Design Exceptions	X	

Request Structure Number

Submit a structure number request through the Structures Design and Bridge Operations website.

Develop S&L Sheets

Develop and submit S&Ls for final acceptance.

Consider the type of wall to be used, the treatment at the top of the wall required (e.g., moment slab, coping, or fence), and its proximity and interaction to adjacent structures.

Provide Constructability Review

Verify that the structure can be reasonably constructed and determine a plausible staging scheme.

Identify Design Exceptions

If any design exceptions are required, submit approval request.

39S Finalize Sheet 1 (Bridge Only)

Overview

Finalize the bridge S&L sheets by incorporating any remaining changes to the roadway geometrics.

Deliverables

- ☐ Final Bridge S&L Sheets
- ☐ Structures Division Form SA-2
- ☐ Design Exception Approvals (if applicable)

Distribution

- ☐ 61S
- ☐ Project File
- ☐ Structures Design Manager

Task	Responsible Party Activity Leader Bridge Design Engineer
▪ Incorporate Geotechnical Information	X
▪ Provide Constructability Review	X
▪ Identify Design Exceptions	X

Incorporate Geotechnical Information

Incorporate geotechnical information into the S&L sheets

Provide Constructability Review

Verify that the structure can be reasonably constructed and determine a plausible staging scheme.

Identify Design Exceptions

If any design exceptions are required, submit approval request.

51S Develop Minor Structure Plans

Overview

Proceed with the development of the minor structure design.

Deliverables

- □ Minor Structure Plans

Distribution

- □ 53S
- □ 69X
- □ Project File

Task	Responsible Party	
	Activity Leader	
	Structural Design Engineer	Hydraulics Design Engineer
▪ Coordinate Design with Hydraulics and Geotechnical Engineers	X	
▪ Design Box Culvert	X	
▪ Design Headwall	X	
▪ Design Wingwalls, Aprons, and Cutoff Walls	X	

Coordinate Design with Hydraulics and Geotechnical Engineers

If sufficient information is available at this stage, advance the drainage structures. Otherwise, wait until 51Q and/or 51G are further progressed.

- Coordinate the geometry and sizing of the box culverts, headwalls, and other drainage structures with hydraulic requirements.
- Coordinate with the roadway design engineers to size the headwalls and wingwalls to accommodate grading requirements.
- Develop an initial design based on the draft geotechnical report

Design Box Culvert

Design Headwall

Design Wingwalls, Aprons, and Cutoff Walls

53S Detail Minor Structure

Overview

Begin developing the minor structure details based on the design from 51S.

Deliverables

- ☐ Minor Structure Details

Distribution

- ☐ 69X
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Develop Drainage Structure Details	X

Develop Drainage Structure Details

Begin developing drainage structure plans, including the layout of the wingwalls, aprons, and cutoff walls.

55S Develop Wall Plans

Overview

Based on roadway requirements, begin developing the wall layout and details.

Deliverables

- □ Wall Plans

Distribution

- □ 69X
- □ Project File

Task	Responsible Party	
	Activity Leader	
	Design Engineer	Structural Engineer
▪ Develop Wall Layout	X	
▪ Detail Wall Plans	X	

Develop Wall Layout

Based on approved S&Ls, roadway profiles, and the draft geotechnical report, progress development of the wall layout. Consider the treatments required at the top of the wall, including moment slabs, fences, and coping as well as tying the wall into an adjacent structure.

Detail Wall Plans

57S Design Overhead Sign/VMS Structure

Overview

Based on the approved sign panel size and layout, develop the design of the sign structure supports.

Deliverables

- ☐ Sign Structure Design

Distribution

- ☐ 59S
- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Request Structure Number	X
▪ Review Sign Structure Layout	X
▪ Design Sign Structure	X
▪ Submit Overhead Structure Plans for Review	X

Request Structure Number

Submit a structure number request for sign structures through the Structures Design and Bridge Operations website.

Review Sign Structure Layout

Review the sign panel and sign structure layouts and verify that their placement allows for an efficient sign structure design. Coordinate with the ATMS and electrical layouts to determine where conduit will be required.

Design Sign Structure

Determine if the standard sign structure design detailed in Section 14 of the *Structures Design Manual* will apply. If the standard design does apply, use the panel arrangements and structure support locations to determine the appropriate structural element sizing. If the standard design does not apply, use the requirements in the design manual as well as project requirements to determine the correct sizing for the following elements, amongst others:

- Mast, elbow, and post tube sizes and thicknesses
- Drilled shaft diameters and depths

- Field and base plate requirements
- Sign panel and variable message sign (VMS) support requirements
- Handhole and chase nipple locations

Submit Overhead Structure Plans for Review

59S Detail Overhead Sign/VMS Structure

Overview

Begin developing the sign structure details based on the design from 57S.

Deliverables

- ☐ Overhead Sign Details

Distribution

- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Develop Sign Structure Details	X
▪ Submit Details for Review	X

Develop Sign Structure Details

Use the Structures Division's standard drawings for sign structures (standard or non-standard) along with the design from 57S to develop sign structure plans.

Submit Details for Review

Submit structure details that are at or near 60% for review and comment.

61S Final S&L Acceptance (for Minor and Major)

Overview

Obtain approval from the Structures Division for final S&L sheets and the Structure Design Criteria.

Deliverables

- ☐ Acceptance of Type Selection Report
- ☐ Acceptance of Structure Design Criteria and Seismic Strategy Report
- ☐ Acceptance of S&L Sheets

Distribution

- ☐ Project File

Task	Responsible Party Activity Leader Deputy Bridge Engineer
▪ Review Type Selection Report	X
▪ Review Design Criteria and Seismic Strategy Report	X
▪ Review S&L Sheets	X

Review Type Selection Report

Review Design Criteria and Seismic Strategy Report

Review S&L Sheets

62S Submit S&L to Railroad (for Bridge and Minor)

Overview

Submit S&L sheets to the railroad(s) company(s) for their review and approval. Initial dialogue with the railroad(s) should begin during 21S so that the project is not delayed.

Deliverables

- ☐ S&L Sheets
- ☐ Overhead Submittal Checklist
- ☐ Overhead Grade Separation Data Sheet

Distribution

- ☐ Project File
- ☐ Railroad Owner(s)
- ☐ Region Utility and Railroad Coordinator
- ☐ Chief Railroad Engineer

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Submit S&Ls for Railroad(s)' Review	X
▪ Submit Checklist and Data Sheet	X

Submit S&Ls for Railroad(s)' Review

- Obtain the railroad company's approval.
- Set up review discussions and/or a meeting with the railroad company to discuss any outstanding comments. Make revisions to the structure layout if required.

Submit Checklist and Data Sheet

63S Final Structure Rehab Design

Overview

Proceed with developing the rehabilitation procedures and repairs.

Deliverables

- ☐ Structural Rehabilitation Design

Distribution

- ☐ 64S
- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Design Repairs	X
▪ Develop Special Provisions and Procedures	X

Design Repairs

Where required, develop design calculations to support the repair details.

Develop Special Provisions and Procedures

Begin developing special provisions and repair procedures.

64S Detail Rehab Structure

Overview

Begin developing the repair details based on the design from 63S.

Deliverables

- ☐ 60% Structural Rehabilitation Details

Distribution

- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Develop Repair Details	X
▪ Submit Details for Review	X

Develop Repair Details

Based on the design in 63S, create repair plans.

Submit Details for Review

Submit details that are at or near a 60% level of completion for review and comments.

65S Design Superstructure

Overview

Based on the approved S&Ls and the structural design criteria, design the superstructure elements from the bearing pads up.

Deliverables

- ☐ Superstructure Design

Distribution

- ☐ 66S
- ☐ 67S
- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Provide Final Deck, Overhang, Approach Slabs, Parapet, and Sketches	X
▪ Design Beam(s)	X
▪ Initiate Bearing Pad Sizing	X
▪ Provide Screed Elevations	X

Provide Final Deck, Overhang, Approach Slabs, Parapet, and Sketches

Design Beam(s)

See Section 3.6.2 of the *UDOT Structures Design and Detailing Manual*.

Initiate Bearing Pad Sizing

Although final design may not be completed until after the seismic analysis commences in 66S, begin initial sizing of bearing pads.

Provide Screed Elevations

66S Design Substructure

Overview

Based on the superstructure design requirements and the preliminary information from 37G, design the bridge substructure and provide information to begin the detailing process.

Deliverables

- □ Substructure Design

Distribution

- □ 68V
- □ 68S
- □ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Determine Bridge Seat Elevations	X
▪ Design Abutment(s) and Wingwall(s)	X
▪ Design Bent(s)	X
▪ Initiate Seismic Analysis	X
▪ Design Foundation(s)	X

Determine Bridge Seat Elevations

Design Abutment(s) and Wingwall(s)

Design Bent(s)

Initiate Seismic Analysis

Begin the seismic analysis based on input from the geotechnical engineer, the project specific requirements, and the Structure Division's Standards and Guidelines.

Design Foundation(s)

Begin the foundation design based on static loading, the initial seismic analysis, and the draft geotechnical report.

67S Detail Superstructure

Overview

Begin developing the superstructure details based on the design from 65S.

Deliverables

- ☐ Superstructure Details

Distribution

- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Develop Superstructure Details	X
▪ Submit Plans for Review	X

Develop Superstructure Details

Submit Plans for Review

Along with the substructure details developed in 68S, submit plans that are at or near 60% of completion for review and comments.

68S Detail Substructure

Overview

Begin developing the substructure details based on the design from 66S.

Deliverables

- ☐ Substructure Details

Distribution

- ☐ 68V
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Develop Substructure Details	X
▪ Submit Plans for Review	X

Develop Substructure Details

Submit Plans for Review

Along with the superstructure details developed in 67S, submit plans that are at or near 60% completion for review and comments.

71S Develop Major Structure Project Documents

Overview

Finalize the bridge plans, calculations, and special provisions.

Deliverables

- ☐ Structure Plans
- ☐ Structure Special Provisions
- ☐ Pay Items
- ☐ Quantities
- ☐ Cost Estimate

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Structural Design Engineer	Structural Design Manager
▪ Finalize Structural Plans	X	
▪ Finalize Structural Calculations	X	
▪ Determine Quantities and Engineer's Estimate	X	
▪ Develop Special Provisions	X	

Finalize Structural Plans

Incorporate the comments from 68V and finalize sheets progressed during 68V and 69V, including the bar schedule. Review the plans in accordance with the *UDOT Structures Design Quality Plan*.

Finalize Structural Calculations

Finalize the calculations begun during 65S and 66S and then perform the review in accordance with the *UDOT Structures Design Quality Plan*.

Develop Quantities and Engineer's Estimate

Quantify all design elements and present information, quantities, and unit costs to the Phase Leader.

Develop Special Provisions

Develop special provisions for the work or products not covered in the standard specifications.

73S Develop Rehab Structure Project Documents

Overview

Finalize the rehabilitation plans, calculations, and special provisions.

Deliverables

- ☐ Structural Plans
- ☐ Structural Special Provisions
- ☐ Pay Items
- ☐ Quantities
- ☐ Cost Estimate

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Finalize Structural Plans	X
▪ Finalize Structural Calculations	X
▪ Develop Quantities and Cost Estimate	X
▪ Develop Special Provisions	X

Finalize Structural Plans

Incorporate comments from 68V and finalize sheets progressed during 68V and 69V, including the bar schedule if required. Review plans in accordance with the *UDOT Structures Design Quality Plan*.

Finalize Structural Calculations

Finalize the calculations begun during 63S and then perform the review in accordance with the *UDOT Structures Design Quality Plan*. Verify that the foundations have been designed to meet the requirements of the Final Geotechnical Report produced in 51G and any final hydraulics design, roadway design or other design changes.

Develop Quantities and Cost Estimate

Quantify all design elements and give the quantities and unit costs to the Phase Leader.

2009 Design Network

Develop Special Provisions

Develop special provisions for the work or products not covered in the standard specifications.

75S Develop Overhead Sign/VMS Structure Project Documents

Overview

Finalize the sign structure plans, calculations, and special provisions.

Deliverables

- ☐ Structural Plans
- ☐ Structural Special Provisions
- ☐ Pay Items
- ☐ Quantities
- ☐ Cost Estimate

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Finalize Structural Plans	X
▪ Finalize Structural Calculations	X
▪ Develop Quantities and Cost Estimate	X
▪ Develop Special Provisions	X

Finalize Structural Plans

Incorporate comments from the 68V and finalize sheets progressed during 68V and 69V. Review the plans in accordance with the *UDOT Structures Design Quality Plan*.

Finalize Structural Calculations

Finalize the calculations begun during 57S, and then perform the review in accordance with the *UDOT Structures Design Quality Plan*. Amongst other considerations, verify that the foundations have been designed to meet the requirements of the Final Geotechnical Report produced in 51G and to meet any final signing or roadway changes.

Develop Quantities and Cost Estimate

Quantify all design elements and give the information quantities and unit costs to the Phase Leader.

2009 Design Network

Develop Special Provisions

Develop special provisions for the work or products not covered in the standard specifications.

77S Develop Minor Structure Project Documents

Overview

Finalize the drainage structure plans, calculations, and special provisions.

Deliverables

- ☐ Structural Plans
- ☐ Structural Special Provisions
- ☐ Pay Items
- ☐ Quantities
- ☐ Cost Estimate

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Finalize Structural Plans	X
▪ Finalize Structural Calculations	X
▪ Develop Quantities and Cost Estimate	X
▪ Develop Special Provisions	X

Finalize Structural Plans

Incorporate comments from the 69V, including the bar schedule. Review the plans in accordance with the *Structures Design Quality Plan*.

Finalize Structural Calculations

Finalize the calculations begun during 51S and then perform the review in accordance with the *Structures Design Quality Plan*. Amongst other considerations, verify that the foundations have been designed to meet the requirements of the Final Geotechnical Report produced in 51G and to meet any final hydraulics changes.

Develop Quantities and Cost Estimate

Quantify all design elements and give the information quantities and unit costs to the Phase Leader.

Develop Special Provisions

Develop special provisions for the work or products not covered in the standard specifications.

79S Develop Retaining Wall Project Documents

Overview

Finalize the wall plans and special provisions.

Deliverables

- ☐ Structural Plans
- ☐ Structural Special Provisions
- ☐ Pay Items
- ☐ Quantities
- ☐ Cost Estimate

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party Activity Leader Structural Design Engineer
▪ Finalize Structural Plans	X
▪ Finalize Structural Calculations	X
▪ Develop Quantities and Cost Estimate	X
▪ Develop Special Provisions	X

Finalize Structural Plans

Incorporate comments from the 69V, including the bar schedule if required. Review the plans in accordance with the *Structures Design Quality Plan*.

Finalize Structural Calculations

Finalize any structural calculations required for the wall and then perform the review in accordance with the *Structures Design Quality Plan*. Verify that the wall plans and calculations meet the requirements of the Final Geotechnical Report produced in 51G.

Develop Quantities and Cost Estimate

Quantify all design elements and give the information quantities and unit costs to the Phase Leader.

Develop Special Provisions

Develop special provisions for the work or products not covered in the standard specifications.

83S Final Structure Acceptance

Overview

Obtain the final approvals to release the structural plans and documentation for advertising.

Deliverables

- □ Approval to Advertise

Distribution

- □ 83X
- □ Phase Leader
- □ Project File

Task	Responsible Party	
	Activity Leader	
	Structures Design Manager	Structural Design Engineer
▪ Submit Structural Documentation		X
▪ Review Structural Documentation	X	
▪ Make Revisions		X

Submit Structural Documentation

Address the 79V comments and prepare a package for final review that would include some or all of the following:

- Completed Structural Plans (Usually Unsigned)
- Completed Special Provisions
- Engineer's Estimate
- Responses and Final Dispositions to Previous Review Comments
- Structural Certification Forms
- Design Calculations
- Load Rating Report
- Final Design Criteria and Seismic Strategy
- Independent Review

Review Structural Documentation

Make Revisions

If required, make the changes agreed upon and resubmit the structural package for final approval.

11T Assess Safety Needs

Overview

Obtain the current safety needs and develop a strategy to address the project area's safety issues.

Deliverables

- ☐ Updated OSR
- ☐ Prioritized List of Safety Improvements
- ☐ Initial Quantities and Unit Costs

Distribution

- ☐ Project File
- ☐ 13R

Task	Responsible Party	
	Activity Leader	
	Traffic Operations Engineer	Phase Leader
▪ Review/Update OSR	X	
▪ Review Crash Data	X	
▪ Coordinate with Local Agencies and Identify Their Concerns		X
▪ Identify Safety Concerns	X	
▪ Identify Mitigation/Remedies	X	
▪ Develop Strategy to Address Deficiencies		X

Review/Update OSR

- Obtain the OSR from the Concept Report or request an updated OSR if needed
- Review recommendations

If the project is strictly a signal project, the warrant study and warrant field review will replace the need for an OSR.

Review Crash Data

- Obtain the current crash data
- Review the types of crashes
- Identify the hot spot locations

2009 Design Network

Coordinate with Local Agencies and Identify Their Concerns

- Obtain additional information regarding the safety issues in the project area

Identify Safety Concerns

- Identify other safety issues or deficiencies by doing the following:
  - Coordinate with area maintenance personnel
  - Conduct field reviews if necessary

Identify Mitigation/Remedies

Based on the information obtained, recommend possible mitigation for the identified safety concerns.

Develop Strategy to Address Deficiencies

- Prioritize the identified improvements
- Establish the initial quantities and unit cost

13T Assess Capacity

Overview

Determine the existing traffic volumes and forecast future volumes or, if available, review data from environmental documents or other studies. Develop or review alternatives to accommodate existing, incremental, and future traffic volumes.

Deliverables

- ☐ Capacity Summary

Distribution

- ☐ Project File
- ☐ 13R

Task	Responsible Party	
	Activity Leader	
	Project Traffic Engineer	Phase Leader
▪ Obtain Traffic Counts	X	
▪ Request Pertinent Traffic Studies (As Necessary)	X	
▪ Review Existing Travel Demand Model	X	
▪ Make Preliminary Recommendations	X	
▪ Update Quantities and Unit Prices		X

Obtain Traffic Counts

- Review any existing data.
- Collect 24-hour counts; also, collect the appropriate traffic data and determine the peak hour.
- Collect peak-hour turn movement counts.
- Perform the appropriate origin/destination study if needed.

Request Pertinent Traffic Studies (As Necessary)

- Request the signal warrant study through the Region Traffic Engineer.

Review Existing Travel Demand Model

- Review the existing travel demand model to determine the project scope.
    - Coordinate with the MPO, the Planning Manager for TDM, and the Traffic Operations Planner
- Determine the limitations for the TDM and how the TDM can be used for the project.
    - Coordinate with the MPO, the Planning Manager for TDM, and the Traffic Operations Planner

2009 Design Network

Make Preliminary Recommendations

Based on the traffic information, make initial recommendations on specific design features like the following:

- Number of lanes, including turn lanes
- Queue storage
- Corridor access management plan

Update Quantities and Unit Prices

- Provide to 13R

15T Assess ITS (ATMS) Needs

Overview

Review the existing conditions and ITS Strategic Plan and develop recommendations for the ITS needs.

Deliverables

- ☐ ITS Summary

Distribution

- ☐ Project File
- ☐ 13R

Task	Responsible Party Activity Leader ITS Project Manager
▪ Review State ITS Strategic Plan	X
▪ Provide ITS Summary to 13R	X

Review State ITS Strategic Plan

If it exists, review the state ITS strategic plan to determine what components are needed in the project area. If the state ITS strategic plan does not cover the project area, develop a plan for the area:

- Locate all existing ITS elements in the general vicinity of the project. Generate a location map with the elements mapped.
- Recommend new ITS installations to be completed during the project. These recommendations will include the estimated cost for each improvement. Prioritize these recommended improvements in the final recommendation summary. Possible elements in this summary could include the following:
  - *Conduit or New Network Infrastructure*
    The Communications Plan will include the fiber number and size needed and/or existing requiring protection. Coordinate with the Fiber Manager.
  - *Traffic Signal Interconnect*
    Coordinate with the Signal Maintenance Supervisor or the Signal Operations Engineer.
  - *Closed Circuit Television (CCTV) Camera (Signal Operations)*
    Coordinate with the Signal Operations Engineer.
  - *CCTV Camera (Freeway Operations)*
    Coordinate with the Control Room Manager.
  - *Road Weather Information System (RWIS)*
    Coordinate with the Traffic Operations Center Meteorologist.
  - *Highway Advisory Radio (HAR)*

Coordinate with the ITS Deployment Engineer.

- *VMS*
  Coordinate with the Control Room Manager.
- *Ramp Metering*
  Coordinate with the Signal Maintenance Supervisor and the Signal Operations Engineer.
- *Traffic Management Systems (TMS) Stations*
  Coordinate with the Traffic Mobility Engineer.

Provide ITS Summary to 13R

The Preliminary ITS Summary will include the following:

- Existing ITS summary
- Location, size, and priority of the improvements required
- Preliminary quantities and unit costs
- Construction phasing and limitations
- Updated design schedule and cost estimate

21T Develop Initial Capacity Analysis

Overview

Provide the draft traffic analysis report outlining specific recommendations for improving existing capacity. Develop the travel demand model to forecast future volumes and develop alternatives to accommodate the existing, incremental, and future traffic volumes.

Deliverables

- ☐ Preliminary Capacity Summary

Distribution

- ☐ 21R
- ☐ Region Traffic Engineer
- ☐ Planning Manger for Travel Demand Models
- ☐ Traffic Operations Planner
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Traffic Engineer	Region Traffic Engineer (Review)
▪ Develop Travel Demand Model	X	
▪ Develop Micro-Simulation Model	X	
▪ Provide Preliminary Capacity Summary to 21R	X	

Develop Travel Demand Model

- Forecast design-year traffic volumes
- Determine if traffic projections are reasonable
- Develop traffic growth curves to identify the interim volumes at key years
- Evaluate the conditions prior to the planned capacity projects assumed to exist in the design year
- Coordinate with the MPO, the Planning Manager for TDM, and the Traffic Operations Manager

Develop Micro-Simulation Model

- Balance traffic volumes to prepare for their input into the appropriate traffic capacity analysis software.
- Build an appropriate micro-simulation model that is calibrated/validated for existing conditions:
  - For stop-controlled improvements, use the *Highway Capacity Manual* or Traffix
  - For arterial-street improvements, use Synchro/SimTraffic

    - For freeway and/or arterial improvements, use VISSIM or CORSIM
- Develop a model for the appropriate design year by building on the existing conditions analysis
- Determine if the traffic projections are reasonable
- Develop alternatives to accommodate the future traffic volumes
- Determine the numbers of lanes, including turn lanes
- Determine needed queue storage

Provide Preliminary Capacity Summary to 21R

Write the Preliminary Capacity Summary based on the template.

31T Finalize Capacity Analysis

Overview

Provide the final traffic analysis report and outline specific recommendations for improving existing capacity.

Deliverables

- ☐ Access Justification Report (If Applicable)
- ☐ Interchange Justification Report (If Applicable)
- ☐ Final Traffic Analysis Report

Distribution

- ☐ 21R
- ☐ Region Traffic Engineer
- ☐ Traffic Operations Planner
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Project Traffic Engineer	FHWA (Review)
▪ Prepare/Review Access Justification Report (AJR) and Obtain Approval from FHWA	X	
▪ Adjust Model as Needed	X	
▪ Finalize Traffic Analysis Report	X	

Prepare/Review Access Justification Report (AJR) and Obtain Approval from FHWA

If an interchange access is modified, provide an AJR and submit to FHWA for approval.

Adjust Model as Needed

Based on information from 21T as well as comments from the Region Traffic Engineer, the MPO and Traffic Operations Planner should provide modifications to the traffic model.

Finalize Traffic Analysis Report

- Update the report based on the modifications to the model.
- If intersections meet a signal warrant or left-turn warrant, make recommendations in the report and request approval from the Central Traffic and Safety Department. Notify Central Traffic and Safety regarding any changes to posted speed limits.

- Submit the final traffic analysis report to the Region Traffic Engineer.

33T Develop Signal Design

Overview

Develop the signal design according to the *UDOT Design of Signalized Intersections Manual*.

Deliverables

- ☐ Signal Design
- ☐ Cooperative Agreement
- ☐ Request for ROW

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Signal Designer	Region Traffic and Safety
▪ Identify Signal Requirements	X	
▪ Layout Signal	X	
▪ Review Signal Design		X

Identify Signal Requirements

- Avoid conflicts by coordinating with other disciplines, including utility, roadway, drainage, and signing and striping
- Develop a cooperative agreement with the local jurisdiction. Describe the betterment requests coordinated with the local jurisdiction
- Identify signal phasing based on the capacity analysis and warrant study
- Identify the site distance concerns and coordinate with other disciplines
- Coordinate ATMS needs with the TOC
- Ensure the Americans with Disabilities Act (ADA) accessibility requirements are addressed
- Identify the ROW needs
- Coordinate power source needs and impacts with the local utilities

Layout Signal

Develop the signal design according to the *UDOT Design of Signalized Intersections Manual*.

Review Signal Design

Send the signal design to the Region Traffic and Safety Engineer for review.

Submit to Central Traffic and Safety for review and comment.

35T Develop Lighting Design

Overview

Develop the lighting design according to the *AASHTO Roadway Lighting Design Guide*.

Deliverables

- ☐ Lighting Design
- ☐ Cooperative Agreement
- ☐ Request for ROW

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Lighting Designer	Region Traffic and Safety
▪ Identify Lighting Requirements	X	
▪ Layout Lighting Design	X	
▪ Review Lighting Design		X

Identify Lighting Requirements

- Coordinate with the local jurisdiction to determine the lighting type.
- Develop a cooperative agreement with the local jurisdiction. Describe the betterment requests coordinated with the local jurisdiction. Refer to Policy and Procedure 06C-06 for maintenance and power cost responsibilities.
- Determine luminaire spacing. Verify illumination through AGI32 lighting software.
- Identify the ROW needs.
- Coordinate power source needs and impacts with the local utilities.

Layout Lighting Design

Develop the lighting design according to the *AASHTO Roadway Lighting Design Guide*.

Review Lighting Design

Send the lighting design to the Region Traffic and Safety Engineer for review.
Submit to Central Traffic and Safety for review and comment.

37T Develop ITS (ATMS) Components Design

Overview

Identify the ITS device locations and create a cost estimate.

Deliverables

- ☐ ITS Device Location
- ☐ Cost Estimate

Distribution

- ☐ Project File
- ☐ 31R

Task	Responsible Party Activity Leader ITS Project Manager
▪ Identify Location of Device Placement	X
▪ Review Signal Design for Interconnect Needs	X
▪ Provide ITS Summary to 31R	X

Identify Location of Device Placement

- Possible elements to include in this summary include the following:
  - *Conduit or New Network Infrastructure*
    The Communications Plan will include fiber number and size needed and/or existing requiring protection. Coordinate with the Fiber Manager.
  - *Traffic Signal Interconnect*
    Coordinate with the Signal Maintenance Supervisor or the Signal Operations Engineer.
  - *CCTV Camera (Signal Operations)*
    Coordinate with the Signal Operations Engineer.
  - *CCTV Camera (Freeway Operations)*
    Coordinate with the Control Room Manager.
  - *RWIS*
    Coordinate with the Traffic Operations Center (TOC) Meteorologist.
  - *HAR*
    Coordinate with the ITS Deployment Engineer.
  - *VMS*
    Coordinate with the Control Room Manager.
  - *Ramp Metering*

Coordinate with the Signal Maintenance Supervisor and the Signal Operations Engineer.

- *TMS Stations*
  Coordinate with the Traffic Mobility Engineer.

- Locate the power source
- Identify communication access
- Identify that state-furnished versus contractor-furnished items and fill out the form provided by ITS Deployment Section
- Update the quantities and unit costs

Review Signal Design for Interconnect Needs

- Review the device locations and needs

Provide ITS Summary to 31R

The Preliminary ITS summary will include the following:

- Location, size, and priority of the improvements required
- Updated quantities and unit costs
- Construction phasing and limitations
- Updated design schedule

39T Develop Maintenance-of-Traffic Design

Overview

Coordinating with stakeholders, develop a design for maintenance-of-traffic.

Deliverables

- ☐ Maintenance-of-Traffic Design Package for 39V
- ☐ Closure Approvals, if necessary

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Traffic Engineer	Designer
▪ Develop the Maintenance-of-Traffic Design	X	
▪ Provide Information to 31R	X	

Develop the Maintenance-of-Traffic Design

Using resources that include the *UDOT Standard Drawings TC series*, FHWA, MUTCD, and the Work Zone Safety and Mobility Policy UDOT 08-5, develop the maintenance-of-traffic design. Consider the following:

- Coordinate the detour routes with stakeholders to minimize impacts. These stakeholders could include state agencies, local agencies, property owners, and the traveling public.
- Review the capacity analysis to determine user costs.
- Evaluate the detour alternatives.
- Review the preferred alternatives with the Region Traffic Engineer.
- Design project specific custom signs, including dimensions, color, message, and letter size.
- Determine the VMS sign placement and proposed message.
- Design the static information sign.
- Consider the overhead VMS and HAR radio sites.
- Consider the need to model traffic impacts due to traffic pattern modifications.
- Coordinate signal timing adjustments with the TOC.
- If closures are required, do the following:
    - Develop the detour plan for each closure
    - Place VMS in each direction seven days prior to the closure

- Get approval from the Region Operations Engineer and Region Director

Provide Information to 31R

Prepare an initial maintenance-of-traffic design package, including the following:

- Approved detour routes and signing

51T Develop Signal Plans

Overview

Following *UDOT CADD and Plan Sheet Standards* and using templates found on the UDOT Signal and Lighting Design website, prepare a signal plan set.

Deliverables

- ☐ Signal Plan Set

Distribution

- ☐ 69X
- ☐ Project File

Task	Responsible Party Activity Leader Signal Designer
▪ Incorporate Revisions Identified in 39V	X
▪ Develop Signal Plans	X
▪ Update Quantities and Unit Costs	X

Incorporate Revisions Identified in 39V

Revise the signal design, quantities, and quantities based on the outcome of 39V.

Develop Signal Plans

Develop the signal plan set using current plan sheet guidelines and templates found on the UDOT Signal and Lighting Design website.

Update Quantities and Unit Costs

Update quantities and unit costs. Send updated costs to 69X for inclusion in the Total Project Cost Estimate.

53T Develop Lighting Plans

Overview

Following *UDOT CADD and Plan Sheet Standards*, prepare the lighting plan set.

Deliverables

- ☐ Lighting Plan Set

Distribution

- ☐ 69X
- ☐ Project File

Task	Responsible Party Activity Leader Signal Designer
▪ Incorporate Revisions Identified in 39V	X
▪ Develop Lighting Plans	X
▪ Update Quantities and Unit Costs	X

Incorporate Revisions Identified in 39V

Revise the signal design, quantities, and quantities based on the outcome of 39V.

Develop Lighting Plans

Develop a lighting plan set to include lighting layout sheets, circuit schematics, and power source details.

Update Quantities and Unit Costs

Update quantities and unit costs. Send updated costs to 69X for inclusion in the Total Project Cost Estimate.

55T Develop ITS (ATMS) Plans

Overview

Develop the ATMS plan set and update the unit costs and quantities.

Deliverables

- ☐ ATMS Plan Set

Distribution

- ☐ 31R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Designer	ITS Project Manager
▪ Incorporate Revisions Identified in 39V	X	
▪ Develop ATMS Plans	X	
▪ Update Quantities and Unit Costs	X	

Incorporate Revisions Identified in 39V

Revise the ATMS design, quantities, and cost estimate based on the outcome of 39V.

Develop ATMS Plans

For ATMS plan sheets, do the following:

- Show cut/fill lines for mainline, ramps, and any side streets
- Call out splice points
- Provide general location of ITS devices
  - Optimize the location of the CCTV camera
- Include street names on the mainline and cross streets
- Show the electrical layout from the power supply to the power disconnect
- Show the communications layout from demarcation to the ITS device
  - Note: Fiber Splice Details will be developed and provided during construction
- Generate Channel As-Built Plan
- Develop IP Plan

Update Quantities and Unit Costs

- Update quantities and unit costs
- Provide to 31R

57T Overhead Sign Review Approval

Overview

Review, revise, and approve the overhead sign layout.

Deliverables

- □ Approved Overhead Sign Layout

Distribution

- □ Project File
- □ Project Design Engineer

Task	Responsible Party	
	Activity Leader	
	Central Traffic and Safety	Project Design Engineer
▪ Review	X	
▪ Make Revisions		X
▪ Certify Sign Layout	X	

Review

Coordinate the review schedule with Central Traffic and Safety Division.

Make Revisions

Certify Sign Layout

59T Develop Maintenance-of-Traffic Plans

Overview

Following *UDOT CADD and Plan Sheet Standards*, prepare maintenance-of-traffic plan set.

Deliverables

- ☐ Maintenance-of-Traffic Plan Set

Distribution

- ☐ 51R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Designer	Traffic And Safety Engineer
▪ Incorporate Revisions Identified in 39V	X	
▪ Develop Maintenance-of-Traffic Plans	X	

Incorporate Revisions Identified in 39V

Revise the design based on the outcome of 39V.

Develop Maintenance of Traffic Plans

Follow the current *UDOT CADD and Plan Sheet Standards* to generate plan sheets. Maintenance-of-traffic plans should include the following:

- Detour routes
- Sign locations
- Details of custom project specific signs, including dimensions, messages, color, and letter size

71T Develop Signal Project Documents

Overview

Finalize the signal plans and create the signal schedule sheets. Prepare and assemble signal project documents, including signal plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- ☐ Signal Project Documents

Distribution

- ☐ 71R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Signal Designer	Region Traffic and Safety
▪ Incorporate Revisions Identified in 69V	X	
▪ Develop Signal Project Documents	X	
▪ Identify /Request State-Furnished Materials	X	
▪ Provide an Estimated Signal Cost	X	

Incorporate Revisions Identified in 69V

Revise the signal plan sheets, quantities, and Total Project Cost Estimate based on the outcome of 69V.

Develop Signal Project Documents

- Use the current Signal and Lighting Design schedule sheets and the *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate the signal summary sheets.
- Write signal special provisions.
- Prepare design deviations if applicable.
- Provide the documents to 71R.

Identify/Request State-Furnished Materials

Determine the needed state-furnished materials and submit a completed State-Furnished Material Request Form.

Provide an Estimated Signal Cost

Send the updated estimated signal cost to 71R for inclusion in the Engineer's Estimate.

73T Develop Lighting Project Documents

Overview

Finalize the lighting plans and create summary sheets. Prepare and assemble lighting project documents, including lighting plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- ☐ Lighting Project Documents

Distribution

- ☐ 71R

Task	Responsible Party Activity Leader Lighting Designer
▪ Incorporate Revisions Identified in 69V	X
▪ Develop Lighting Project Documents	X
▪ Identify/Request State-Furnished Materials	X
▪ Provide an Estimated Signal Cost	X

Incorporate Revisions Identified in 69V

Revise the lighting plan sheets, quantities, and Total Project Cost Estimate based on the outcome of 69V.

Develop Lighting Project Documents

- Follow the current *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate the signing and striping summary sheets.
  - Customize Excel spreadsheets for the specific project.
  - Show enough detail to support calculations.
- Write the lighting special provisions.
- Prepare design deviations if applicable.

Provide the lighting project documents to 71R.

Identify/Request State-Furnished Materials

Identify and submit the completed State-Furnished Material Request Form for any state-furnished materials that are needed to complete the project.

Provide and Estimated Signal Cost

Send the updated estimated lighting cost to 71R for inclusion in the Engineer's Estimate.

75T Develop ITS (ATMS) Project Documents

Overview

Finalize the ATMS plans and create summaries. Finalize the ATMS State-Furnished Materials request form.

Deliverables

- ☐ ATMS Project Documents

Distribution

- ☐ 79X
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Designer	ITS Project Manager
▪ Finalize ATMS State-Furnished Materials Request Form		X
▪ Incorporate Revisions Identified in 69V	X	
▪ Develop ATMS Project Documents	X	
▪ Update Quantities and Unit Costs	X	

Finalize ATMS State-Furnished Materials Request Form

Finalize the ATMS State-Furnished Materials Request Form to be submitted at the Preconstruction Meeting.

Incorporate Revisions Identified in 69V

Revise the ATMS plan sheets, quantities, and unit costs based on the outcome of 69V.

Develop ATMS Project Documents

- Follow the current *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate ATMS summary sheets. Standards available on the UDOT CADD Downloads webpage.
  - Customize Excel spreadsheets for the specific project.
- Write ATMS special provisions.
- Provide the ATMS project documents to 79X.

Update Quantities and Unit Costs

- Update quantities and unit costs

79T Develop Maintenance-of-Traffic Project Documents

Overview

Finalize the maintenance-of-traffic plans. Prepare the maintenance-of-traffic project documents.

Deliverables

- ☐ Maintenance-of-Traffic Project Documents

Distribution

- ☐ 71R
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Traffic Engineer	Designer
▪ Incorporate Revisions Identified in 69V	X	
▪ Develop Maintenance-of-Traffic Project Documents	X	

Incorporate Revisions Identified in 69V

Revise the maintenance-of-traffic plan sheets based on the outcome of 69V.

Develop Maintenance-of-Traffic Project Documents

- Compile information from all disciplines (e.g., PI, environmental, roadway, and traffic) to generate Limitations of Operations specification.
- Prepare any other specifications as required by design.

Provide the maintenance-of-traffic project documents to 71R.

01U Develop Base Mapping/Existing Surface

Overview

Obtain base mapping and topography for the entire project area.

Deliverables

- ☐ Survey Control
- ☐ Survey Points and Descriptions
- ☐ Base Mapping
- ☐ Existing Digital Terrain Model (DTM)

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Surveyor (In-House or Consultant)	Designer
▪ Establish Survey Control	X	
▪ Perform Topographical Survey of Existing Features in Project Area	X	
▪ Develop Base Mapping	X	
▪ Develop DTM of the Existing Surface	X	

Establish Survey Control

Choose a basis of survey that is compatible with all adjacent projects (i.e., past, present, and future projects). By using the same basis of survey, data can be easily shared between projects, lessening the likelihood of significant errors.

- Determine the type of survey based on the current *UDOT Mapping and Aerial Photogrammetry Manual*
- The basis for the survey should include the following:
  - Section Corners
  - Existing ROW Markers
  - USGS Monuments
  - State Plane Coordinate System
  - Local Survey Monuments
- Control points need to have northing, easting, and elevation with equivalents in the State Plane Coordinate System

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Perform Topographical Survey of Existing Features in Project Area

Provide a text file, including survey point numbers, northing and easting coordinates, elevations, and descriptions. Provide a MicroStation file with survey point numbers, elevations, and descriptions displayed. Provide a copy of all field notes made during the survey. All work should be done in accordance with *UDOT's CADD Standards*.

Develop Base Mapping

All work should be done in MicroStation in accordance with *UDOT's CADD Standards*.

Develop DTM of the Existing Surface

All work should be done in InRoads and MicroStation in accordance with *UDOT's CADD Standards*.

Potential Contacts

Agency	Information Requested
Federal Agencies/Bureau of Land Management/Forest Service/National Park Service/Bureau of Reclamation/U.S. Geological Survey/Department of Defense/Bureau of Indian Affairs	Permission to Enter Survey Markers
UDOT Permits Officer	Access Permit
UDOT Region ROW Engineer	Survey Control
Local Governments	Permission to Enter Survey Control
State Land Board	Permission to Enter
School and Institutional Trust Land Administration (SITLA)	Permission to Enter
Indian Nations	Permission to Enter
Railroads	Permission to Enter
Private Property Owners	

11U Obtain Preliminary Utility & Railroad Information

Overview

Provide utility and railroad companies with formal notification of the project, including authorization to make design engineering expenditures. This authorization must be given by the UDOT Region Utility and Railroad Coordinator. Also, request that utility and railroad companies provide UDOT with current plans of their facilities located within the proposed project limits.

Deliverables

- ☐ Utility and Railroad Companies and Contacts List
- ☐ Authorization for Design Engineering Expenditures (Must Be Issued by UDOT)/Requests for Records)
- ☐ Future Utility Installations Planned by Companies
- ☐ Potential Betterments
- ☐ Documentation of Railroad Surveillance Review

Distribution

- ☐ Project File
- ☐ Project Design Engineer
- ☐ Region Utility and Railroad Coordinator
- ☐ Chief Railroad Engineer (cc: of railroad notification letters)

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Phase Leader
▪ Notify Utility Companies of Impending Construction and Request Appropriate Plans of Their Facilities	X	
▪ Issue Authorization for Design Expenditures	X	
▪ Obtain Surveillance Review		X

Notify Utility Companies of Impending Construction and Request Appropriate Plans of Their Facilities

- Perform Subsurface Utility Engineering (SUE) Level C and D.
- Contact utility companies and provide an overall map and description of the project area. Request their records and provide a due date for when information is required.
- Identify a point of contact for project design coordination.
- Coordinate the need for future utility locations and any betterment.

- Prepare authorization letters. The Consultant can prepare the letters, but they must be signed by the Region Utility and Railroad Coordinator.

Obtain Surveillance Review

- Phase Leader contact Chief Railroad Engineer to initiate surveillance review.
- Chief Railroad Engineer provides surveillance review. Refer to rule R930-5: Establishment and Regulation of At-Grade Railroad Crossings.
    - Provide the railroad company 30 days notice prior to the surveillance review.
        - Contact the railroad company to notify them of the impending construction and request updated plans of their facilities. Provide an overall map and description of the project area and develop a plan for any railroad reviews.
- If modifications to at-grade crossings are eligible for Railroad Crossing Safety Funds (130 Funds), the Chief Railroad Engineer should use Form R-709 to request funding.
- The Chief Railroad Engineer should provide the funding estimate to the Phase Leader.
- The surveillance review provides recommendations to be used for the at-grade crossing design preparation.

For grade-separation construction, the surveillance team should decide and formalize track configuration commitments for use during the design of the structure.

21U Obtain Supplemental Surveys

Overview

Coordinate with the project team to identify any additional survey requirements not previously completed.

Deliverables

- ☐ Updated Survey Control
- ☐ Updated Survey Points and Descriptions
- ☐ Updated Base Mapping
- ☐ Updated Existing Digital Terrain Model (DTM)

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Surveyor (In-House or Consultant)	Designer
▪ Determine Extent of Additional Surveying Needs		X
▪ Create Survey Control Plan Sheet	X	

Determine Extent of Additional Surveying Needs

Create Survey Control Plan Sheet

23U Designate Utilities (Horizontal Mapping)

Overview

Locate and define the horizontal location of underground and above ground utilities.

Deliverables

- ☐ Horizontal Location of Underground Utilities

Distribution

- ☐ Project File
- ☐ Utility Companies
- ☐ Roadway Design Engineer
- ☐ Hydraulics Engineer

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Consultant
▪ Mark Horizontal Location of Utilities		X
▪ Survey Marks		X
▪ Create MicroStation File		X
▪ Review Horizontal Location with Utility Owner	X	

Mark Horizontal Location of Utilities

Designate the horizontal position of the utilities in the field. Typically, this should be done within 0.5 feet, location of all above ground utility facilities and markers.

Survey Marks

Survey the horizontal utility locations using the project coordinate/control system.

Create MicroStation File

Using the surveyed horizontal utility locations, create a MicroStation file showing the horizontal locations in the project coordinate system. This file should conform to UDOT CADD Standards.

Review Horizontal Location with Utility Owner

- Provide maps that show the horizontal location of utilities for all the utility owners to review.
- Set up a meeting with the utility owners to review comments and resolve issues with the horizontal locations.

- Discuss what future plans the utility owners have and what the timing for those improvements will be. Determine what, if anything needs to happen prior to the current project.
- Provide updated maps based on comments.

31U Identify Potential Utility Conflict

Overview

Identify potential utility conflicts through coordination with utility owners and designers. Obtain the preliminary relocation costs from utility owners.

Deliverables

- ☐ Utility Conflict Matrix/Summary
- ☐ Preliminary Cost Estimate
- ☐ Utility Owner Meeting Summary

Distribution

- ☐ Project File
- ☐ Utility Companies
- ☐ Roadway Design Engineer
- ☐ Hydraulics Engineer
- ☐ Region or Project Utility Coordinator

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Project Team/ Consultant
▪ Evaluate Conflicts		X
▪ Coordinate Utility Conflicts with Design		X
▪ Coordinate Utility Conflicts with Utility Owners		X
▪ Develop Preliminary Cost Estimate		X
▪ Draft the Utility Reimbursement Agreements	X	

Evaluate Conflicts

Using the current design files, determine utility conflicts and organize in a matrix/summary.

Coordinate Utility Conflicts with Design

- Meet with project team designers to discuss conflict locations and determine reasonable design modifications to avoid or minimize the utility impacts.
- Update the conflict summary based on any changes from this meeting.
- Determine locations needing vertical identification.

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Coordinate Utility Conflicts with Utility Owners

- Submit the utility conflict matrix/summary to Region Utility and Railroad Coordinator to identify possible utility conflicts and utility relocations.
- Coordinate and assist the Region Utility and Railroad Coordinator with setting up a meeting with the utility owners.
- Meet with the utility owners on-site to discuss possible utility conflicts and utility relocations. Determine actual conflicts and relocations, resolve who will be relocating the utilities, and discuss the project schedule.

Develop Preliminary Cost Estimate

Obtain preliminary utility relocations cost estimates from each impacted utility. Provide the cost estimates to the project team for inclusion in the overall running Engineer's Estimate.

Draft the Utility Reimbursement Agreements

Draft the Utility Reimbursement Agreements with the information available.

33U Identify Utility Depth (SUE Level A)

Overview

Use the Utility Conflict Matrix/Summary to determine specific locations where vertical information could be used to avoid conflicts with existing utility facilities or assist utility companies to identify and design relocation plans.

Deliverables

- ☐ SUE Level A

Distribution

- ☐ Roadway Design Engineer
- ☐ Region Utility and Railroad Coordinator
- ☐ Hydraulics Design Engineer
- ☐ Structures Design Engineer
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Utility Design Engineer
▪ Coordinate with Consultant for SUE (Level A) of Existing Utilities	X	
▪ Provide SUE (Level A)		X

Coordinate with Consultant for SUE (Level A) of Existing Utilities

Provide the Consultant with locations to conduct SUE (Level A) as identified in 31U.

Provide SUE (Level A)

- Incorporate SUE (Level A) information into MicroStation in project coordinate system with the pothole locations displayed

35U Develop 30% Railroad Crossing Plans

Overview

Develop 30% railroad plans and verify design compliance with the surveillance report and railroad company guidelines.

Deliverables

- □ Railroad Crossing Surface and Warning Device Plans

Distribution

- □ Project File
- □ Region Utility and Railroad Coordinator
- □ Chief Railroad Engineer
- □ Railroad Companies

Task	Responsible Party	
	Activity Leader	
	Structure Design Engineer or Roadway Design Engineer	Project/ Region Utility and Railroad Coordinator
▪ For Structures See 62S: Prepare 30% Structure Drawings (S&L Sheets), Overhead Checklist and Data Sheets for overhead structures, in compliance with railroad company guidelines.	X	
▪ For Roadway: Prepare Crossing and Signal Plans At-Grade Crossing Modifications.	X	

For Structures See 62S: Prepare 30% Structure Drawings (S&L Sheets), Overhead Checklist and Data Sheet for Overhead Structures, in Compliance with Railroad Company Guidelines.

(See 62S) Structure Design Engineer prepares 30% structure design package and submits to railroad company(s) for review and comments through the Region Utility/Railroad Coordinator.

Forward the railroad comments to the Structure Design Engineer so the S&L Drawings may be corrected.

The Utility and Railroad Coordinator incorporates the approved 30% plans into the Construction and Maintenance and/or License Agreement.

The Structure Design Engineer provides the Region Utility and Railroad Coordinator with an estimated duration for railroad flagging required to construct the structure. This duration will be included in the Construction and Maintenance Agreement.

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For Roadway: Prepare Crossing Improvement Plans for At-Grade Crossing Modifications

The Roadway Design Engineer prepares plans for all railroad crossing modifications in accordance with the applicable standards.

- Submit the plans to Region Utility and Railroad Coordinator to then be submitted to the Chief Railroad Engineer and railroad company for review.
- Submit the plans to the railroad company for review and comments.
    - Request the preliminary cost estimate for surface and signal work from Union Pacific Railroad for modifications to their facilities
    - For modification of facilities belonging to UTA or other private owners at their request, incorporate the completion and cost of the surface and signal work into the construction contract

Upon receipt of a Cost Estimate or instruction from other railroad owners, the Project Railroad Coordinator incorporates the correct information and language into the Construction and Maintenance Agreements.

The Roadway Design Engineer provides the Project Utility and Railroad Coordinator with an estimated duration of railroad flagging required to complete the required modifications to the at grade crossing. This duration will be included in the Construction and Maintenance Agreement.

The Project Utility and Railroad Coordinator compiles information for the Construction and Maintenance Agreement.

51U Develop Utility Plans

Overview

Provide plan sets indicating existing and proposed utility facility locations.

Deliverables

- ☐ Utility Plan Sheets

Distribution

- ☐ Region Utility and Railroad Coordinator
- ☐ Utility Companies
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Design Engineer
▪ Develop Utility Plans with Existing Horizontal and Vertical Locations for Utilities		X
▪ Coordinate Utility Relocations with Utility Owners		X
▪ Update Cost Estimate		X
▪ Finalize Utility Reimbursement Agreements	X	

Develop Utility Plans with Horizontal and Vertical Ties for Utilities

- Create utility plan sheets in accordance to UDOT Plan Sheet Standards.
- Develop a utility contact list, including the utility owner, contact person, and phone number; then include the information in the Plan Set.
- Show the existing horizontal and vertical utility information when applicable.
- Coordinate and incorporate the utility relocations design into the project plan set, including any betterments requested by the companies. Also include horizontal and vertical ties.
- Verify the design has been modified to avoid or minimize utility impacts.
- Verify that relocated utility facilities meet all applicable requirements for depth of bury, separation from other utilities, clear zone, ROW accommodation, etc.

Coordinate Utility Relocations with Utility Owners

- Submit utility plan sheets to the Region Utility and Railroad Coordinator so that they may be distributed to utility owners for their review

- Coordinate and assist the Region Utility and Railroad Coordinator with setting up a meeting with the utility owners
- Meet with utility owners to discuss utility relocations and any comments they have on the utility plan sheets
- Request final cost estimates for incorporation into the Reimbursement Agreements
- Resolve the utility owner comments and redistribute the updated utility plan sheets

Update Cost Estimate

Obtain utility relocations cost estimates from each utility company. Provide the cost estimates to the project team for inclusion in the overall running Total Project Cost Estimate.

Finalize Utility Reimbursement Agreements

Include relocation plans, estimated costs, and betterment information.

55U Develop 60% Railroad Plans

Overview

Obtain the UDOT Chief Railroad Engineer's and Railroad Company(s)' approval for the crossing modification or construction plans. Obtain the executed construction and maintenance agreement from the Railroad Company(s).

Deliverables

- ☐ Executed Construction and Maintenance Agreement
- ☐ Railroad Plan Sheets

Distribution

- ☐ Chief Railroad Engineer
- ☐ Region Utility and Railroad Coordinator
- ☐ Project File
- ☐ 21X

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Structure Design Engineer or Roadway Design Engineer
▪ Verify all Review Comments are Incorporated into the Design		X
▪ Finalize Railroad Structures and Crossing Improvement Plan Sheets		X

Verify all Review Comments are Incorporated into the Design

Finalize Railroad Structures and Crossing Improvement Plan Sheets

Obtain plan sheet approval from the UDOT Chief Railroad Engineer.

Finalize plan sheets in accordance with UDOT Plan Sheet Standards and the Union Pacific Checklist.

71U Develop Utility Project Documents

Overview

Finalize Reimbursement Agreements, Cooperative Agreements, and Special Provisions required for advertisement of the project.

Deliverables

- ☐ Assemble Final Utility Relocation and/or Construction Plan Sets
- ☐ Executed Utility Reimbursement Agreements
- ☐ Executed Cooperative Agreements with Municipalities and Service Districts
- ☐ Special Provisions for Project Specific Utility Issues
- ☐ Utility Certification

Distribution

- ☐ Project File
- ☐ Region Utility and Railroad Coordinator
- ☐ Contracts, Estimates and Agreements Supervisor, Construction Division
- ☐ Internal Audit
- ☐ Comptroller's Office
- ☐ Project Manager
- ☐ Roadway Design Engineer
- ☐ Resident Engineer
- ☐ Utility Companies, Municipalities, Service Districts

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Project Utility Coordinator, or Roadway Design Engineer
▪ Complete Utility Reimbursement and Cooperative Agreements	X	
▪ Provide Authorization to Proceed with Work for Utility Companies	X	
▪ Prepare Utility Related Special Provisions		X
▪ Issue Utility Certification	X	

Complete Utility Reimbursement and Cooperative Agreements

The Consultant Utility Coordinators may prepare Agreements for submittal and review by the Project Manager and Region Utility and Railroad Coordinator. The Region Utility and Railroad Coordinator will prepare the R-709. Then have the Agreements signed on behalf of UDOT and executed by the Comptroller's office; sign the document authorizing the Utility Companies to proceed with the work. Distribute the executed copies.

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Provide Authorization to Proceed with Work for Utility Companies

Prepare Utility Related Special Provisions

Incorporate criteria outlined in the Utility and Cooperative Agreements, third party specifications, etc.

Issue Utility Certification

75U Develop Railroad Project Documents

Overview

Finalize the Railroad Company Agreements required to advertise the project, including Construction and Maintenance Agreements, Wireline, and Pipeline Agreements, Encroachment Permits, etc.

Deliverables

- ☐ Railroad Company(s) Requirement Special Provisions
- ☐ Railroad Construction and Maintenance Agreements for Structures and At-Grade Crossings.
- ☐ Wireline, Pipeline, and Encroachment Permits for UDOT Utilities in Railroad ROW
- ☐ Updated Cost Estimate for Railroad Improvements

Distribution

- ☐ 79X
- ☐ Project File
- ☐ Region Utility and Railroad Coordinator
- ☐ Contracts, Estimates and Agreements Supervisor, Construction Division
- ☐ Internal Audit
- ☐ Comptroller's Office
- ☐ Project Manager
- ☐ Roadway Design Engineer
- ☐ Resident Engineer
- ☐ Chief Railroad Engineer
- ☐ Railroad Companies

Task	Responsible Party	
	Activity Leader	
	Region Utility and Railroad Coordinator	Consultant/ Project Railroad Coordinator
▪ Complete Railroad Construction and Maintenance Agreements	X	
▪ Request/Obtain Cost Estimate for Railroad Improvements	X	

Complete Railroad Construction and Maintenance Agreements

The Consultant Railroad Coordinators may prepare the Railroad Agreements for submittal and review by the Project Manager and the Region Utility and Railroad Coordinator. The Region Utility and Railroad Coordinator will prepare the R-709. Then have the Agreements signed on behalf of UDOT and executed by the Comptroller's office; authorize the Railroad Companies to proceed with the work. Distribute executed copies.

Request/Obtain Cost Estimate for Railroad Improvements

- Execute Wireline, Pipeline and Encroachments Issue Authorization to Proceed with Work to Railroad Companies
- Prepare Railroad Special Provisions
- Incorporate criteria outlined in Railroad Company Agreements, Guidelines and Specifications.

09V Initial Project Team Meeting

Overview

Prepare for and hold the initial project team meeting. The purpose of the meeting is to introduce team members, to familiarize the team with the project, to review and approve the project scope, to schedule and budget, and to commit to the project's success.

Deliverables

- ☐ Reviewed Scope
- ☐ Reviewed Schedule
- ☐ Reviewed Budget
- ☐ Approved Project Charter
- ☐ Approved Communication Plan
- ☐ Approved QC/QA Plan

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparation	X	
▪ Hold Meeting	X	
▪ Develop Preliminary Schedule and Budget	X	

Meeting Preparation

Plan the meeting and invite the project team and appropriate stakeholders:

- Determine an appropriate location
- Determine date and time
- Develop agenda (see below)
- Determine the appropriate attendees (see below) and send invitations
- Identify person to take meeting minutes

Develop the following:

- Draft Project Charter
- Draft Communication Plan
- Draft QC/QA Plan

Also, provide the following at the meeting:

- Concept Report
- Project Location Mapping (e.g., USGS Quads, GoogleEarth, and As-Builts)
- Scope
- Schedule
- Budget

Hold Meeting

- Hold meeting based on agenda
- Gain commitments from all team members for scope, schedule, and budget
- Agree on communication plan
- Agree on QC/QA plan
- Negotiate review time needed prior to each meeting
- Review project scope, schedule, and budget
- Develop and distribute meeting minutes, including project charter and communication plan

Potential Agenda Items

In general, this should be a short meeting. The following is potential agenda items and materials provided:

- Team Member Introductions Including Role on the Project
- Review Project Location
- Review Concept Report
- Review Scope
- Review Schedule
- Review Budget
- Review/Approve Project Charter
- Review/Approve Project Communication Plan
- Review/Approve QC/QA Plan
- Discuss Lessons Learned from Previous Projects

Potential Attendees

All Project Team Members

In addition to all team members, consider inviting the following if applicable:

Federal Agencies
FHWA
Region
Region Director Region Preconstruction Engineer Region District Engineer Region Materials Engineer Region Pavement Engineer Region Environmental Engineer

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Region Archaeologist
Region Landscape Architect
Region Hydraulics Engineer
Region Utility and Railroad Coordinator
Resident Engineer
Region ROW Engineer
Region Traffic Engineer
Region PIM
Maintenance Area Supervisor
Shed Foreman
Project Design Engineer
Design Engineer
Central Support Personnel
Value Engineer Manager
ROW Deputy Director
Geotechnical Engineer
Structural Engineer
Environmental Engineer
Hydraulic Engineer
Traffic Signal and Lighting Program Manager/Engineer
Traffic and Safety
Traffic Operations
TOC
Pedestrian and Bicycle Planner
Consulant Team If Applicable

Develop Preliminary Schedule and Budget

Develop the schedule and budget for all in-house work. These agreements are documented by updating ePM Screen 220 and must be finalized by 19V.

19V Project Identification Meeting

Overview

Identify all design features which need to be included to complete the project. This determination is based on the type of project and information in the concept report. Develop project identification meeting minutes and a Total Project Cost Estimate that shows estimated project costs.

Review summaries from the various disciplines to identify variance between the original assumed project scope and the identified project needs from the summary reports. Review the Total Project Cost Estimate and identify any variance with the current funding. Identify project scope modifications that will be incorporated into the project and document why any suggestions will not be included. If necessary, identify any design exceptions that will be required because the scope is not being modified. Identify schedule impacts due to the scope modifications. Determine any budget changes needed due to the scope modifications. Identify additional project engineering effort needed due to scope modifications. The additional engineering effort may require a contract modification.

The intent of this activity is to come out with a clear project scope, schedule, and budget to which all team members agree. Update ePM schedules. Renew commitments so they all concur with the new scope, schedule, and budget. Identify any changes to the initial first cut geometry and all ensuing alterations to other disciplines based on those modifications.

If the concept of the project changes significantly or the cost of the project exceeds the programmed cost by more than 20 percent, the Project Manager consults with the Region Program Manager.

Significant concept changes include, but are not limited to, the following:

1. Inclusion of any design feature specifically excluded in the concept report.
2. Change from structural overlay to rehabilitation.
3. Increase in number of lanes as designated in the concept report.
4. Bridge rehabilitation to bridge replacement.
5. Change in project termini that would increase estimated cost by 20 percent.

Deliverables

- □ Electronic Copy of the QC/QA Signature Sheets
- □ Total Project Cost Estimate
- □ Baseline Schedule Set in ePM (Durations and Hours)
- □ Project Objectives (i.e., What Are We Trying to Accomplish with this Project)
- □ Meeting Minutes
- □ Meeting Date for 29V

Distribution

- □ Project File

- □ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparation	X	
▪ Meeting Attendees	X	
▪ Meeting Agenda	X	

Meeting Preparation

- Arrange a meeting location and send appointment to attendees
- Prepare a meeting agenda
- Arrange for someone to take meeting minutes
- Review project objectives

Meeting Attendees

Potential meeting attendees include, but are not limited to, the following:

Potential Meeting Attendees
Community Relations
FHWA
Central ROW
Geotechnical Division
Structures Division
Bicycle and Pedestrian Coordinator
Central Hydraulics Division
Central Traffic and Safety
Central Environmental Division
Value Engineering Manager
Project Manager
Phase Leader
District Engineer
Project Design Engineer
Region Public Involvement Manager
Region Materials Engineer
Region Pavement Engineer
Region Utility and Railroad Coordinator
Region Preconstruction Engineer
Region ROW Engineer
Region Hydraulics Engineer
Resident Engineer
Region Environmental Manager
Region Archaeologist
Region Landscape Architect
Maintenance Area Supervisor
Maintenance Shed Foreman
Region Traffic and Safety Engineer

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Central Traffic and Safety Engineer
Local Government Representative
Consultant Project Manager
Consultant Design Staff

Meeting Agenda

The intent of this activity is to come out with a clear project scope, schedule, and budget to which all team members agree. Identify any changes to the initial first cut geometry and all ensuing alterations within other disciplines based on those modifications.

The following are suggested agenda items:

- Review summaries from the various disciplines to identify variance between the original assumed project scope and the identified project needs from the summary reports.
- Identify constructability issues that may impact project costs, project schedule, and construction phasing.
- Review the Preliminary Engineer's Estimate and identify any variance with the current funding. Agree on units of measure for pay items. Review assumed unit costs.
- Review the Draft Transportation Management Plan (TMP) and identify conflicts.
- Identify project scope modifications that will be incorporated into the project and document why any suggested scope modifications will not be included.
- Identify any additional design exceptions that will be required.
- Identify innovative contracting opportunities (e.g., lane rental, A + B, and incentive/disincentive).
- Agree upon the project's committed advertising date.
- Identify schedule impacts due to the scope modifications.
- Determine any budget changes needed due to scope modifications.
- Identify the additional design effort needed due to scope modifications.
- Identify contract modifications required.
- Develop a schedule for team meetings.
- Review QC/QA documentation and ensure all necessary QC/QA processes have been completed.

29V Initial Geometry Review Meeting (Scroll Plot)

Overview

At the completion of this activity, the geometry (horizontal and vertical), cross-section, structures type and location, and all other major elements of work are set and should not change. The meeting should include reviews to determine consistency, accuracy, and constructability within the project scope and to discuss available funding. The design review will take place on a scroll plot or electronic design files to focus on how each discipline's design fits with the overall design.

Deliverables

- ☐ Electronic Copy of the QC/QA Signature Sheets
- ☐ Updated Total Project Cost Estimate
- ☐ Meeting Minutes

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparation	X	
▪ Meeting Attendees	X	
▪ Meeting Agenda	X	
▪ Meeting Minutes	X	
▪ Update the Project Definition Document	X	
▪ Update ePM	X	

Meeting Preparation

- Arrange a meeting location and send appointment to attendees
- Prepare a meeting agenda
- Arrange for someone to take meeting minutes

Meeting Attendees

Potential Attendees include, but are not limited to, the following:

Potential Meeting Attendees
Community Relations
FHWA
Central ROW
Geotechnical Division

2009 Design Network

Structures Division
Bicycle and Pedestrian Coordinator
Central Hydraulics Division
Central Traffic and Safety
Central Environmental Division
Value Engineering Manager
Project Manager
Phase Leader
District Engineer
Project Design Engineer
Region Public Involvement Manager
Region Materials Engineer
Region Pavement Engineer
Region Utility and Railroad Coordinator
Region Preconstruction Engineer
Region ROW Engineer
Region Hydraulics Engineer
Resident Engineer
Region Environmental Manager
Region Archaeologist
Region Landscape Architect
Maintenance Area Supervisor
Maintenance Shed Foreman
Region Traffic and Safety Engineer
Central Traffic and Safety Engineer
Local Government Representative
Consultant Project Manager
Consultant Design Staff

Meeting Agenda

At the completion of this activity, the geometry (horizontal and vertical), cross-section, structures type and location, and all other major elements of work are set and should not change.

Below are suggested agenda items:

- Identify any design conflicts between disciplines.
- Resolve any design conflicts between disciplines.
- Review the design for constructability issues.
- Review the project phasing and maintenance-of-traffic.
- Review the current Total Project Cost Estimate and identify any variance with the current funding. Agree on units of measure for additional pay items. Review assumed unit costs.
- Review the current status of the design exceptions.
- Review innovative contracting opportunities (e.g., lane rental, A + B, and incentive/disincentive).
- Review project milestones, including committed advertising date.
- Review ROW strategy.
- Review QC/QA documentation and ensure all necessary QC/QA processes have been completed.
- Review project commitments.
- Review meeting minutes and comment resolution form from 19V.

2009 Design Network

Meeting Minutes

- Capture all decisions made and create an action item list
- Distribute to all meeting invitees

Update the Project Definition Document

The Project Manager should revise the project definition document based on the changes identified during the meeting.

Update ePM

39V Design Review Meeting (Scroll Plot)

Overview

At the completion of this activity, all project design should be complete, and design issues should be resolved. The meeting should include reviews to determine available funding and consistency, accuracy, and constructability within the project scope.

Deliverables

- ☐ Electronic Copy of the QC/QA Signature Sheets
- ☐ Updated Total Project Cost Estimate
- ☐ Meeting Minutes

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparation	X	
▪ Meeting Attendees	X	
▪ Meeting Agenda	X	
▪ Meeting Minutes	X	

Meeting Preparation

- Arrange a meeting location and send appointment to attendees
- Prepare a meeting agenda
- Arrange for someone to take meeting minutes

Meeting Attendees

Potential attendees could include, but are not limited to, the following:

Potential Meeting Attendees
Community Relations
FHWA
Central ROW
Geotechnical Division
Structures Division
Bicycle and Pedestrian Coordinator

2009 Design Network

Central Hydraulics Division
Central Traffic and Safety
Central Environmental Division
Value Engineering Manager
Project Manager
Phase Leader
District Engineer
Project Design Engineer
Region Public Involvement Manager
Region Materials Engineer
Region Pavement Engineer
Region Utility and Railroad Coordinator
Region Preconstruction Engineer
Region ROW Engineer
Region Hydraulics Engineer
Resident Engineer
Region Environmental Manager
Region Archaeologist
Region Landscape Architect
Maintenance Area Supervisor
Maintenance Shed Foreman
Region Traffic and Safety Engineer
Central Traffic and Safety Engineer
Local Government Representative
Consultant Project Manager
Consultant Design Staff

Meeting Agenda

At the completion of this activity, all project design should be complete. Any outstanding design issues must be resolved before or during this activity.

Below are suggested agenda items:

- Review the list of plan sheet responsibilities and revise as necessary for upcoming activities.
- Resolve any remaining design conflicts between disciplines.
- Review the design for constructability issues.
- Review the project phasing and maintenance-of-traffic.
- Identify any limitations of operations.
- Identify any maintenance problem areas.
- Verify that all commitments have been incorporated, including those regarding environmental, ROW, and PI.
- Review the current Engineer's Estimate and identify any variance with the current funding. Agree on units of measure for additional pay items. Review assumed unit costs.
- Review innovative contracting opportunities (e.g., lane rental, A + B, and incentive/disincentive).
- Review project milestones, including committed advertising date.
- Review ROW strategy.
- Review QC/QA documentation and ensure all necessary QC/QA processes have been completed.
- Review QC/QA commitment list for completion of the project plan sheets.
- Review project commitments.

- Review meeting minutes and comment resolution form from 29V.

Meeting Minutes

- Capture all decisions made and create an action item list
- Distribute to all meeting invitees

68V 60% Structural Review Meeting

Overview

Submit progress structural plans that are at or near 60% completion for review and hold a review meeting to verify concept and scope.

Deliverables

- ☐ 60% Bridge Plans
- ☐ 60% Bridge Widening Plans
- ☐ 60% Overhead Sign Structure Plans
- ☐ Responsible to S&L Comments

Distribution

- ☐ Structural Design Manager
- ☐ Railroad Companies for Underpass Structures Only
- ☐ Region Utility and Railroad Coordinator

Task	Responsible Party	
	Activity Leader	
	Structural Design Engineer	Structural Design Manager
▪ Address S&L Comments	X	
▪ Provide 60% Plans for Review	X	
▪ Review 60% Plans		X

Address S&L Comments

Provide responses to comments made during S&L review.

Provide 60% Plans for Review

Submit 60% level plans for review for the following structure types:

- Bridges
- Bridge Widenings
- Overhead Sign Structures
- Sound Walls (Non-Standard Only)
- Structural Barriers (Non-Standard Only)
- Structure Repairs

2009 Design Network

Review 60% Plans

Provide the Review Comment Form and final disposition of comments.

69V Plan Review Meeting

Overview

The purpose of this activity is to ensure that the elements provided in the plan sheets are consistent with the project scope and available funding requirements. The meeting should include reviews to determine consistency, accuracy, and constructability.

Deliverables

- ☐ Electronic Copy of the QC/QA Signature Sheets
- ☐ Updated Total Project Cost Estimate
- ☐ Meeting Minutes

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparation	X	
▪ Meeting Attendees	X	
▪ Meeting Agenda	X	
▪ Meeting Minutes	X	

Meeting Preparation

- Arrange a meeting location and send appointment to attendees; arrange for travel if necessary
- Prepare a meeting agenda
- Arrange for someone to take meeting minutes

Meeting Attendees

Potential attendees may include, but are not limited to, the following:

Potential Meeting Attendees
Community Relations
FHWA
Central ROW
Geotechnical Division
Structures Division
Bicycle and Pedestrian Coordinator

2009 Design Network

Central Hydraulics Division
Central Traffic and Safety
Central Environmental Division
Value Engineering Manager
Project Manager
Phase Leader
District Engineer
Project Design Engineer
Region Public Involvement Manager
Region Materials Engineer
Region Pavement Engineer
Region Utility and Railroad Coordinator
Region Preconstruction Engineer
Region ROW Engineer
Region Hydraulics Engineer
Resident Engineer
Region Environmental Manager
Region Archaeologist
Region Landscape Architect
Maintenance Area Supervisor
Maintenance Shed Foreman
Region Traffic and Safety Engineer
Central Traffic and Safety Engineer
Local Government Representative
Consultant Project Manager
Consultant Design Staff

Meeting Agenda

At the completion of this activity, the project plan set should be complete.

Below are suggested agenda items:

- Review plan set for any outstanding issues.
- Review the current Total Project Cost Estimate and identify any variance with the current funding. Agree on units of measure for additional pay items. Review assumed unit costs.
- Review innovative contracting opportunities (e.g., lane rental, A + B, and incentive/disincentive).
- Review project milestones, including committed advertising date.
- Review ROW progress.
- Review QC/QA documentation and ensure all necessary QC/QA processes have been completed.
- Review project commitments.
- Review meeting minutes and comment resolution form from 39V.

Meeting Minutes

- Capture all decisions made and create an action item list
- Distribute to all meeting invitees

79V Project Documents Review Meeting

Overview

At the completion of this activity, all project documents should be complete. All plan sheets, summary sheets, special provisions, estimates, and design deviations should not change from this point.

Deliverables

- ☐ Electronic Copy of the QC/QA Signature Sheets
- ☐ Meeting Minutes

Distribution

- ☐ Project File
- ☐ Project Team

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Meeting Preparations	X	
▪ Meeting Attendees	X	
▪ Meeting Agenda	X	
▪ Meeting Minutes	X	

Meeting Preparation

- Arrange a meeting location and send appointment to attendees (arrange for travel if necessary)
- Prepare a meeting agenda
- Arrange for someone to take meeting minutes

Meeting Attendees

Potential Attendees may include, but are not limited to, the following:

Potential Meeting Attendees
Community Relations
FHWA
Central ROW
Geotechnical Division
Structures Division
Bicycle and Pedestrian Coordinator
Central Hydraulics Division
Central Traffic and Safety
Central Environmental Division

2009 Design Network

Value Engineering Manager
Project Manager
Phase Leader
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Project Design Engineer
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Region Materials Engineer
Region Pavement Engineer
Region Utility and Railroad Coordinator
Region Preconstruction Engineer
Region ROW Engineer
Region Hydraulics Engineer
Resident Engineer
Region Environmental Manager
Region Archaeologist
Region Landscape Architect
Maintenance Area Supervisor
Maintenance Shed Foreman
Region Traffic and Safety Engineer
Central Traffic and Safety Engineer
Local Government Representative
Consultant Project Manager
Consultant Design Staff

Meeting Agenda

At the completion of this activity, all project documents should be complete. All plan sheets, summary sheets, special provisions, estimates, and design deviations should not change from this point.

Below are suggested agenda items:

- Review project documents for any outstanding issues.
- Review project specifications and plans to ensure all previous commitments have been included. See 21X for a list of project commitments.
- Review the current Engineer's Estimate and identify any variance with the current funding. Review assumed unit costs.
- Review project milestones, including the committed advertising date.
- Review ROW progress.
- Review QC/QA documentation and ensure all necessary QC/QA processes have been completed.
- Review project commitments.
- Review meeting minutes and comment resolution form from 59V.

Meeting Minutes

- Capture all decisions made, create an action item list, and distribute the meeting minutes to the meeting invitees.

01W Manage Right-of-Way Property

Overview

Manage the property that UDOT owns or will acquire during the preconstruction phase. Refer to Chapter 6 of the *UDOT Right-of-Way Operations Manual*.

Deliverables

- □ Plan for Disposition of Excess Property

Distribution

- □ Central ROW

Task	Responsible Party Activity Leader Property Management and Corridor Preservation Manager
▪ Manage ROW Property	X

Conduct Field Review of Project

Drive the corridor with the applicable team members—such as the ROW team, Project Manager, and designers–to determine the strategy for property management during the project. Identify properties that are candidates for rental, are going to be demolished, and/or are to be preserved for sale after project completion, etc. Identify properties for potential salvage value. Update ROW module in ePM to track each property's status.

Manage Properties with Improvements

Upon completion of acquisition, do the following:

- Walk through to take over property
- Transfer utilities
- Determine suitability for rental. Based upon factors—such as time until construction begins, potential for vandalism, condition of the property, or ultimate use—determine an appropriate action, which may include the following:
  - Renting
  - Demolition
  - Immediate sale of unneeded portions
- If applicable, hire a property management firm

Manage Properties without Improvements

Upon completion of acquisition, do the following:

- Review the property to assess existing conditions
- Determine the level of management necessary for the property
- Assess the potential for the contractor's use
- Assess the potential post-construction uses

Identify and Manage Property Water Rights

11W Identify Existing Right-of-Way

Overview

Identify existing ROW along the project and adjacent ownerships.

Deliverables

- ☐ Existing ROW Map

Distribution

- ☐ Project File
- ☐ 13W
- ☐ Region ROW Engineer

Task	Responsible Party Activity Leader Region ROW Manager
▪ Research Existing ROW and Property Boundaries for Project Area	X
▪ Develop ROW Mapping	X

Research Existing ROW and Property Boundaries for Project Area

For the entire project limits, do the following:

- Perform title searches
- Obtain deeds
- Obtain tax ID notices
- Obtain county ownership plat maps
- Obtain chain of title
- Obtain mining claims

Potential Contacts include the following:

Potential Contacts
County Recorder
BLM Officials
Utility Companies
Railroad Companies

Develop ROW Mapping

- Convert existing information into the project coordinate system

- Develop line work in MicroStation and verify consistency with legal descriptions
- Identify ROW parcels that need to be cleaned up

13W Hold Right-of-Way Strategy Meeting

Overview

The purpose of this meeting is to develop a strategy to optimize the ROW acquisition schedule and minimize project costs. Identify design changes that could minimize ROW impacts. Identify critical parcels that could affect the timely delivery of the project. Develop a strategy to mitigate the critical parcels and to acquire all ROW.

Deliverables

- □ ROW Acquisition Strategy

Distribution

- □ 13R
- □ Project File

Task	Responsible Party			
	Activity Leader: Central ROW	Region ROW	Phase Leader	Designer
▪ Conduct Field Review of the Project			X	
▪ Identify Parcels to Avoid	X			
▪ Develop Initial ROW Requirements		X		
▪ Develop Initial ROW Cost Estimate	X			
▪ Develop Initial Acquisition Schedule	X			

Conduct Field Review of the Project

- The project team should conduct a physical or virtual drive-thru of the project
- Each ownership within the project limits should be photographed

Identify Parcels to Avoid

- Identify parcels of a high cost or with a high potential to delay the project schedule.
- Brainstorm design alternatives that may avoid these parcels. Things to consider:
  - Can a straight ROW setback be used on this project?
  - Can the ROW be widened to one side or the other?

Develop Initial ROW Requirements

- Identify funding sources (federal versus state)
- Determine number of ownerships for various project alternatives

- Determine the total acquisitions versus partial acquisitions
    - Determine relocations required by type (business versus non-business)

Develop Initial ROW Cost Estimate

- Develop typical unit costs for the various parcel types
- Calculate the acquisition costs
- Calculate the total project ROW costs
- Provide the cost estimate to 13R

Develop Initial Acquisition Schedule

- Identify parcels eligible for pre-categorical exclusion acquisitions
- Prioritize the order of acquisition (which deals take longest)
- Coordinate the time frame with Phase Leader

Meeting Attendees could include, but are not limited, to the following:

Meeting Attendees
Project Manager
Region ROW
Central ROW
Design Engineer
Phase Leader

23W Identify Initial Right-of-Way Needs

Overview

Based on the information obtained from 19V and 11W, identify ownerships that have a high probability of major impacts and may require a total acquisitions or a displacement.

Deliverables

- ☐ List of Parcels for Early Acquisition

Distribution

- ☐ Project File
- ☐ Central ROW

Task	Responsible Party		
	Activity Leader		
	ROW Designer	Central ROW	Phase Leader
▪ Identify Ownerships for Early Acquisition	X		

Identify Ownerships for Early Acquisition

- The ROW designer will coordinate with all relevant designers and the Phase Leader to identify the critical ownerships that warrant early acquisition efforts.

25W Develop Right-of-Way Plans (Early Acquisition)

Overview

Prepare the documents required for the purchase of early acquisitions.

Deliverables

- ☐ All Documents Necessary for ROW Acquisition

Distribution

- ☐ Project File
- ☐ Central ROW

Task	Responsible Party Activity Leader ROW Designer
▪ Provide Documents	X

Provide Documents

- If total acquisition is necessary, do the following:
  - Provide legal descriptions
- If partial acquisition is necessary, do the following:
  - Develop a map and legal descriptions
  - Develop supporting documents

27W Develop Shotgun Estimate

Overview

Develop a cost estimate for all project ROW acquisitions, including all real property and cost to acquire.

Deliverables

- ☐ Shotgun Estimate

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ Phase Leader

Task	Responsible Party	
	Activity Leader	
	Central ROW	Phase Leader
▪ Develop Shotgun Estimate	X	
▪ Update ePM ROW System with Shotgun Estimate	X	
▪ Update ePM Screen 505		X

Develop Shotgun Estimate

Include the cost to acquire and manage acquired property.

Update ePM ROW System with Shotgun Estimate

Update ePM Screen 505

31W Prepare Right-of-Way Description (Early Acquisition)

Overview

Prepare legal descriptions of the properties and/or easements to be purchased.

Deliverables

- ☐ ROW Descriptions

Distribution

- ☐ Project File
- ☐ Region ROW Manager

Task	Responsible Party	
	Activity Leader	
	Region ROW	Consultant
▪ Prepare ROW Descriptions		X
▪ Review ROW Descriptions	X	
▪ Update ROW Descriptions Based on Review		X

Prepare ROW Description

- Following the *UDOT Right-of-Way Operational Manual*, prepare legal descriptions for each parcel to be acquired.

Review ROW Descriptions

- Review ROW descriptions and provide comments.

Update ROW Descriptions Based on Review

- Update the ROW descriptions from review comments.
- Resolve any comments issues.

33W Review Final Right-of-Way (Early Acquisition)

Overview

Review the final ROW package and submit to central ROW for entry in the ePM system.

Deliverables

- ☐ Complete ROW Package

Distribution

- ☐ Central ROW
- ☐ Project File

Task	Responsible Party Activity Leader Region ROW Manager
▪ Final ROW Review	X

Final ROW Review

Review plans and documents for completeness and accuracy. This process should include the following: (Refer to the *Right-of-Way Design Manual* for the current standards and guidance)

- The ROW Designer submits a complete package to the Region ROW Manager
- The Region ROW Manager reviews the package for completeness and accuracy
- The Region ROW Manager submits package to central ROW
- Central ROW uploads to the ePM ROW system

35W Begin Appraisal (Early Acquisition)

Overview

Develop supporting information for the appraisal without contacting the property owner.

Deliverables

- ☐ Initial Supporting Information About the Appraisal

Distribution

- ☐ 47W

Task	Responsible Party Activity Leader Appraiser
▪ Develop Supporting Information	X

Develop Supporting Information

- Acquire and review the county tax assessor records
- Collect and analyze applicable comparable sales data
- Conduct a drive-by inspection of the property

37W Finalize Appraisal (Early Acquisition)

Overview

Upon completion of environmental clearance for each individual property (41Y), complete an appraisal of the property.

Deliverables

- ☐ Complete appraisal for early acquisition parcels

Distribution

- ☐ Central Right-of-Way
- ☐ Acquisition Agent
- ☐ Project File

Task	Responsible Party Activity Leader Appraiser
▪ Finalize Appraisal	X

Finalize Appraisal

Complete the appraisals begun in 35W.

39W Review Appraisals (Early Acquisition)

Overview

The UDOT staff reviews appraisals from 47W.

Deliverables

- ☐ Approval to Acquire

Distribution

- ☐ Project File
- ☐ Acquisition Agent

Task	Responsible Party Activity Leader Central ROW
▪ Review and Accept Appraisals	X
▪ Update ePM ROW System	X
▪ Submit for Acquisition	X

Review and Accept Appraisals

Review appraisals from 47W to ensure fair and just compensation.

Update ePM ROW System

Update the ePM ROW system with appraised values for each parcel.

Submit for Acquisition

Upon approval of appraisals, submit to acquisition agent.

41W Identify Final Right-of-Way Needs

Overview

Based on the information obtained from the *Design & Environmental Clearance Stage*, identify all remaining parcels to be acquired.

Deliverables

- ☐ List of Parcels for Acquisition

Distribution

- ☐ Project File
- ☐ Central ROW

Task	Responsible Party			
	Activity Leader: ROW Designer	Central ROW	Phase Leader	Roadway Designer
▪ Identify Parcels for Acquisition	X			

Identify Parcels for Acquisition

Coordinate with the ROW Lead and Phase Leader to identify the remaining acquisitions. Also include all parcels identified as early acquisition and note their current status.

- Draft an ownership record and assign a number for each property affected by the highway, showing all recording references.

43W Develop Final Right-of-Way Plans

Overview

Develop ROW plans.

Deliverables

- ☐ ROW Plans

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ Region ROW Engineer

Task	Responsible Party	
	Activity Leader	
	Region ROW	Designer
▪ Develop ROW Plans		X
▪ Review ROW Plans	X	
▪ Update ROW Plans Based on Review		X
▪ Develop ROW Plan Set		X

Develop ROW Plans

- Develop the ROW plans to show the acquisitions that are required to accommodate all aspects of the project, including fee ownership, slope easements, temporary construction easements, drainage easements, and utility relocations and easements
- Include early acquisitions parcels
- Assign parcel numbers
- Place all line work and annotation on the appropriate CADD level
- Refer to the *Right-of-Way Design Manual*

Review ROW Plans

- Reference the ROW levels in the master design file and confirm that the designed ROW accommodates all design features, including all necessary easements
- Provide feedback as required

Update ROW Plans Based on Review

- Update the ROW plans from review comments

- Resolve any outstanding issues

Develop ROW Plan Set

- Follow the current *UDOT CADD Standards* and *Right-of-Way Design Manual*.

45W Prepare Right-of-Way Description

Overview

Prepare legal descriptions of the properties and/or easements to be purchased.

Deliverables

- ☐ ROW Descriptions

Distribution

- ☐ Project File
- ☐ Region ROW Manager

Task	Responsible Party	
	Activity Leader	
	Region ROW Manager	Consultant
▪ Prepare ROW Descriptions		X
▪ Review ROW Descriptions	X	
▪ Update ROW Descriptions Based on Review		X

Prepare ROW Descriptions

- Following the *UDOT Right-of-Way Operational Manual* prepare legal descriptions for each parcel to be acquired.

Review ROW Descriptions

- Review ROW descriptions and provide comments

Update ROW Descriptions Based on Review

- Update the ROW descriptions from review comments
- Resolve any comments issues

47W Update Shotgun Estimate

Overview

Update the estimate created in 27W.

Deliverables

- □ Updated Estimate

Distribution

- □ Project File
- □ Region ROW Engineer
- □ 31R

Task	Responsible Party Activity Leader Central ROW
▪ Update Shotgun Estimate	X

Update Shotgun Estimate

- Using the current ROW plans and the appraisal of early acquisition properties (if applicable), update the shotgun estimate
- Update the ePM ROW system

51W Acquire Right-of-Way (Early Acquisition)

Overview

Acquire the parcels identified for early acquisition.

Deliverables

- ☐ Deed
- ☐ Purchase Contract

Distribution

- ☐ Project File
- ☐ Central ROW
- ☐ Resident Engineer

Task	Responsible Party	
	Activity Leader	
	Region ROW	Designer
▪ Set Up Files	X	
▪ Initiate Negotiations		X
▪ Acquire Property, Obtain Right to Occupy, or Recommend Condemnation		X
▪ Submit File for Approval or Condemnation		X
▪ Check Title		X
▪ Order Check	X	
▪ Send Check to Owner, Title Company, or Court	X	
▪ Record Deeds	X	

Set Up Files

Initiate Negotiations

Present a written offer for each ownership to all parties.

Acquire Property, Obtain Right to Occupy, or Recommend Condemnation

- Send an options letter
- If condemnation is chosen, submit a request for a condemnation memo

2009 Design Network

Submit File for Approval or Condemnation

Submit file for approval of contract or approval of condemnation memo

Check Title

- For total acquisitions, send the title to the title company for review and closing
- For partial acquisitions, follow the title and closing process

Order Check

Send Check to Owner, Title Company, or Court

Record Deeds

53W Condemn Property (Early Acquisition)

Overview

Complete the condemnation process for parcels that cannot be amicably acquired.

Deliverables

- ☐ Order of Occupancy
- ☐ Property Deed

Distribution

- ☐ Project File
- ☐ Central ROW
- ☐ Resident Engineer

Task	Responsible Party Activity Leader Central ROW
▪ Obtain Memo from Director of ROW to Start Condemnation	X
▪ Review Title Report	X
▪ Review Legal Description	X
▪ Review ROW Maps	X
▪ Prepare Condemnation Resolution	X
▪ Submit to Attorney General's Office with Check	X
▪ Obtain Order of Occupancy	X
▪ Obtain Property Deed	X

Obtain Memo from Director of ROW to Start Condemnation

Review Title Report

Review Legal Description

Review ROW Maps

Prepare Condemnation Resolution

Submit to Attorney General's Office with Check

Obtain Order of Occupancy

Obtain Property Deed

55W Relocate Occupants (Early Acquisition)

Overview

Assist occupants through the relocation process.

Deliverables

- ☐ Documentation of Vacated Property

Distribution

- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Central ROW	Relocation Specialists
▪ Relocate Occupants		X

Relocate Occupants

- Meet with the displaced person
- Prepare a relocation study
- Provide a notice of eligibility
- Monitor moves (i.e., make sure they move)
- Prepare and file claims
- Review and approve claims

61W Update Final Right-of-Way Plans

Overview

Update ROW plans based on the outcome of 39V.

Deliverables

- ☐ Updated ROW Plans

Distribution

- ☐ Project File
- ☐ Central ROW

Task	Responsible Party		
	Activity Leader		
	Region ROW	Designer	Central ROW
▪ Update Final ROW Plans		X	
▪ Update the Shotgun Estimate			X

Update Final ROW Plans

- Identify changes to the project made during 39V that may result in changes to the ROW required for the project
- Modify the ROW plans accordingly

Update the Shotgun Estimate

- Based on the changed ROW requirements, update the shotgun estimate
- If the estimate has changed significantly, coordinate with the Phase Leader
- Update the ePM ROW system

63W Update Right-of-Way Description

Overview

Update the ROW descriptions based on the outcome of 39V.

Deliverables

- □ Updated ROW Descriptions

Distribution

- □ Project File
- □ Central ROW

Task	Responsible Party Activity Leader Region ROW Manager
▪ Update Final ROW Descriptions	X

Update Final ROW Descriptions

- Update the descriptions of any parcels changed in 61W

65W Conduct Final Right-of-Way Review

Overview

Review the final ROW package and submit to Central ROW for entry in the ePM system.

Deliverables

- ☐ Complete ROW Package

Distribution

- ☐ Central ROW
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Region ROW Manager	Central ROW
▪ Final ROW Review	X	
▪ Update ePM ROW System		X

Final ROW Review

Review plans and documents for completeness and accuracy. Refer to the *Right-of-Way Design Manual* for the current standards and guidance.

- The ROW Designer should submit a complete package to the Region ROW Manager
- The Region ROW Manager reviews the package for completeness and accuracy
- The Region ROW Manager submits the package to Central ROW

Update ePM ROW System

Central ROW will update the ePM ROW system.

67W Conduct Right-of-Way Appraisals

Overview

Appraise each parcel required for the project to determine the fair market value.

Deliverables

- □ Complete Appraisal for Each Parcel

Distribution

- □ Central ROW
- □ 69W

Task	Responsible Party	
	Activity Leader	
	Central ROW	Appraiser
▪ Order Appraisal	X	
▪ Conduct Appraisal		X

Order Appraisal

- Assign an appraiser to estimate the values of the parcels.

Conduct Appraisal

- Acquire and review the county tax assessor records
- Collect and analyze applicable comparable sales data
- Conduct a drive-by inspection of the property
- Meet with property owner
- Complete appraisal

Note: If administrative compensation estimates, then no review is required; skip 69W.

69W Review Appraisals

Overview

The UDOT staff reviews appraisals from 67W.

Deliverables

- ☐ Approval to Acquire

Distribution

- ☐ Project File
- ☐ Acquisition Agent

Task	Responsible Party Activity Leader Central ROW
▪ Review and Accept Appraisals	X
▪ Update ePM ROW System	X
▪ Submit for Acquisition	X

Review and Accept Appraisals

Review appraisals from 67W to ensure fair and just compensation.

Update ePM ROW System

Update ePM ROW system with appraised values for each parcel.

Submit for Acquisition

Upon approval of appraisals, submit to acquisition agent.

71W Acquire Right-of-Way

Overview

Acquire the remaining parcels not acquired as part of early acquisition process.

Deliverables

- ☐ Deed
- ☐ Purchase Contract

Distribution

- ☐ Project File
- ☐ Central ROW
- ☐ Resident Engineer

Task	Responsible Party	
	Activity Leader	
	Central ROW	Acquisition Agent
▪ Set Up files	X	
▪ Initiate Negotiations		X
▪ Obtain Right to Occupy, Acquire Property, or Recommend Alternate Resolutions		X
▪ Submit File for Approval or Condemnation		X
▪ Check Title		X
▪ Order Check	X	
▪ Send Check to Owner, Title Company, or Court	X	
▪ Record Deeds	X	

Set Up files

Initiate Negotiations

Present a written offer for each ownership to all parties of interest.

Obtain Voluntary Right to Occupy, Acquire Property, or Recommend Condemnation

- Determine whether a right to occupy can be acquired or if the property needs to go to condemnation.
- Send an options letter.
- If a condemnation, submit a Request for Condemnation memo.

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Submit File for Approval or Condemnation

Submit File for Approval of Contract or Approval of Condemnation Memo

Check Title

For total acquisitions, send the title to the title company for review and closing.
For partial acquisitions, follow title and closing process.

Order Check

Send Check to Owner, Title Company or Court

Record Deeds

73W Condemn Right-of-Way

Overview

Complete the condemnation process for parcels that cannot be amicably acquired.

Deliverables

- ☐ Order of Occupancy
- ☐ Property Deed

Distribution

- ☐ Project File
- ☐ Central ROW
- ☐ Resident Engineer

Task	Responsible Party Activity Leader Central ROW
▪ Obtain Memo from Director of ROW to Start Condemnation	X
▪ Review Title Report	X
▪ Review Legal Description	X
▪ Review ROW Maps	X
▪ Prepare Condemnation Resolution	X
▪ Submit to Attorney General's Office with Check	X
▪ Attorney General Obtain Order of Occupancy	X
▪ Obtain Property Deed	X

Obtain Memo from Director of ROW to Start Condemnation

Review Title Report

Review Legal Description

Review ROW Maps

Prepare Condemnation Resolution

Submit to Attorney General's Office with Check

Attorney General Obtain Order of Occupancy

Obtain Property Deed

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75W Relocate Occupants

Overview

- ☐ Assist occupants through the relocation process.

Deliverables

- ☐ Documentation of relocation

Distribution

- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Central ROW	Relocation Specialists
▪ Relocate Occupants		X

Relocate Occupants

- Meet with the displaced person
- Prepare a relocation study
- Provide a notice of eligibility
- Monitor moves (i.e., make sure they move)
- Prepare and file claims
- Review and approve claims

77W Prepare Right-of-Way Certification

Overview

Prepare and approve ROW certification.

Deliverables

- ☐ Signed ROW Certification

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ Region ROW Engineer
- ☐ Resident Engineer

Task	Responsible Party	
	Activity Leader	
	Central ROW	Phase Leader
▪ Submit Certification Request		X
▪ Verify Parcel Status	X	
▪ Approve ROW Certification	X	
▪ Provide Documents for Construction	X	

Submit Certification Request

Verify Parcel Status

Verify that all parcels have been acquired or that a right-of-entry has been issued. Verify that any occupants have been relocated or will relocate before construction begins.

Approve ROW Certification

If all parcels are cleared, sign the ROW certification. If all parcels are not cleared, certify the project pending the limitations of operations. Estimate the timeline for parcel clearance and forward to the Phase Leader for inclusion in the project specifications. Submit the certification to the Phase Leader and Central Construction.

Provide Documents for Construction

- Prepare a package including the following:
  - ROW Plans
  - Deeds

- Purchase Contract
- Agreements
- Correspondence with Property Owners

- Give thirty days notice to the local city and/or county surveyor advising them of any monuments within or adjacent to the UDOT ROW, which may be destroyed during construction.

21X Develop and Maintain Project Commitments List

Overview

Create/maintain a Project Commitments List (ePM Screen 775) that documents all commitments made during previous and current phases of the project. The list will be reviewed and maintained throughout each design stage.

Deliverables

- ☐ Project Commitments List

Distribution

- ☐ ePM Screen 775
- ☐ Project File

Task	Responsible Party
	Activity Leader
	Phase Leader
▪ Review Project Commitments	X
▪ Maintain and Update Project Commitments List	X

Review Project Commitments

Review ePM Screen 775 for commitments made during the previous project phases.

Maintain and Update Project Commitments List

Document any additional commitments made during the design phase of the project. These could include ROW, PI, and environmental commitments.

69X Prepare Plan Review Package

Overview

Compile and assemble plan sets for 69V.

Deliverables

- ☐ Plan Review Package for 69V

Distribution

- ☐ 69V
- ☐ Project File

Task	Responsible Party Activity Leader Phase Leader
▪ Assemble Plans	X
▪ Update Total Project Cost Estimate	X
▪ Distribute Plans	X

Assemble Plans

Gather the final plan sets from all disciplines. Verify that the page numbers match the Index of Sheets.

Update Total Project Cost Estimate

Obtain updated quantities and unit costs from all disciplines and update the Total Project Cost Estimate.

Copy and Distribute Plans

Copy and distribute the final package to all 79V attendees.

79X Prepare Project Documents Package

Overview

Create a project documents package for 79V, including plan sets with the incorporated changes from 69V, the summary sheets, the modified specifications and special provisions, and the final Engineer's Estimate in PDBS.

Deliverables

- ☐ Project Documents Package for 79V

Distribution

- ☐ Project File
- ☐ 79V

Task	Responsible Party Activity Leader Phase Leader
▪ Assemble Final Design Package	X
▪ Provide Project Commitments List	X
▪ Copy and Distribute Documents	X

Assemble Final Design Package

- Compile plan sets revised according to the comments received in 69V.
- Assemble a Special Provisions and Supplemental Specifications Book with Table of Contents.
- Insert summary sheets into plan set.
- Create the PDBS Engineer's Estimate and the Measurement and Payment

Provide Project Commitments List

Print ePM Screen 775 and review during 79V.

Copy and Distribute Documents

Copy and distribute the final package to all 79V invitees.

81X Incorporate Project Documents Meeting Comments

Overview

Revise summary sheets, special provisions and modified specifications, and Engineer's Estimate based on comments made in 79V. The Project Documents Package should not change following this activity.

Deliverables

- ☐ Final Project Documents Package

Distribution

- ☐ Project File
- ☐ 83X

Task	Responsible Party Activity Leader Phase Leader
▪ Incorporate Project Documents Review Meeting Comments	X

Incorporate Project Documents Review Meeting Comments

- Using the action item list created in 79V as a guide, make modifications to the Project Documents Package.

83X Final Review

Overview

Coordinate and approve the Final Advertising Package.

Deliverables

- ☐ Signed and Submitted Advertising Package

Distribution

- ☐ Project File
- ☐ Region Project Manager Technician

Task	Responsible Party Activity Leader Phase Leader
▪ Coordinate Completion of Advertising Checklist	X
▪ Review and Sign Advertising Package	X

Coordinate Completion of Advertising Checklist

Assist in assembling forms and documents required for advertisement.

Review and Sign Advertising Package

Verify the quality of the Advertising Package; then sign and submit it with transmittal letter to the Region Project Manager Technician.

11Y Identify Environmental Resources

Overview

Identify resources that could potentially be impacted. Initiate writing the categorical exclusion in ePM.

Deliverables

- ☐ Preliminary Environmental Summary

Distribution

- ☐ Project File
- ☐ Region Environmental
- ☐ 13R

Task	Responsible Party Activity Leader Region Environmental Manager
▪ Determine Project Study Area	X
▪ Obtain Existing Data	X
▪ Conduct Field Review	X
▪ Begin Categorical Exclusion Form in ePM	X
▪ Provide Preliminary Environmental Summary to 13R	X

Determine Project Study Area

For environmental clearance, include staging and borrow locations if necessary. For any cultural analysis, determine the area of potential effects (APE). Consider a footprint that will accommodate minor alignment shifts.

Obtain Existing Data

- Obtain the available electronic data of environmental resources as listed in the categorical exclusion form in the ePM. Also refer to the *Environmental Manual of Instruction* for additional information regarding existing environmental data.

Conduct Field Review

Conduct a field review to visually verify data and identify additional resources.

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Begin Categorical Exclusion Form in ePM

- Identify resources requiring additional study
- Identify resources requiring agency coordination
- Estimate schedule to complete categorical exclusion

Provide Preliminary Environmental Summary to 13R

The preliminary environmental summary will provide designers with information on resources to consider.

15Y Assess Project Aesthetics

Overview

Based on the project type, location, and available funding, develop an aesthetics plan. This may include items such as roadway geometry, structure type selection, treatments on structures, landscaping palette, or color selections.

Deliverables

- □ Aesthetics Summary Report

Distribution

- □ Project File

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect (Overview and Coordination)
▪ Review from Concept/Create		X
▪ Determine Level of Aesthetics		X
▪ Develop Aesthetics Summary Report	X	

Review from Concept/Create

If an aesthetic plan was developed in the concept phase, review the plan for applicability to the current project. Revise the plan as necessary to meet the current project needs. If an aesthetic plan was not developed in the concept phase, prepare a plan as follows:

- Identify the project context:
  - Include the physical and social setting
  - Test native soils to determine suitability for planting and seeding
  - Evaluate invasive species to determine eradication strategy
- Review the scope of the overall project (e.g., new construction versus maintenance or widening versus overlay)
- Review environmental commitments related to aesthetics
- Identify funding available for aesthetic treatments

Determine Level of Aesthetics

Based on the funds available and the project scope and context, develop the aesthetics strategy:

- Meet with local governments for input
- Evaluate ideas on aesthetics and determine how to incorporate them into the project
- Meet with project team members to understand design concepts
- Identify opportunities to enhance aesthetics through the geometric elements and design details
- Develop aesthetics strategy that may include the following:
    - Landscape
    - Structures (e.g., bridges, walls, noise walls, or box culverts)
    - Lighting
    - Enhancement funds and level of local government participation

Develop Aesthetics Summary Report

The aesthetics summary report will include following:

- Summarize the aesthetic strategy
- Provide the topsoil test results
- Identify the need for imported topsoil or soil amendments
- Summarize the invasive species mitigation requirements
- Establish initial quantities and unit cost

17Y Review Project Commitments

Overview

For EA/EIS projects, review environmental commitments on the ePM Screen 775.

Deliverables

- □ Project Commitment Report

Distribution

- □ Project File
- □ 13R
- □ 21X

Task	Responsible Party Activity Leader Region Environmental Manager
▪ Review Commitments and Populate or Update Project Commitments Database	X
▪ Prepare Project Commitments Report	X

Review Commitments and Populate or Update Project Commitments Database

- Review project commitments in ePM Screen 775
- Read the EA/EIS and the approval document (FONSI/ROD) to glean all commitments made
- Enter the commitments as necessary into the project commitments database

Prepare Project Commitments Report

- Print the report from ePM Screen 775
- Highlight the critical commitments that have a potential to affect the scope, schedule, or budget of the project

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21Y Agency Coordination

Overview

Coordinate with agencies regarding potentially impacted resources.

Deliverables

- □ Concurrence Documentation

Distribution

- □ Project File
- □ Region Environmental Lead

Task	Responsible Party	
	Activity Leader	
	Project Environmental Lead	Region Environmental Lead
▪ Coordinate with Agencies	X	
▪ Perform Additional Studies	X	
▪ Determine Need for Public Hearing	X	

Coordinate with Agencies

- Coordinate with agencies regarding potentially impacted resources. Refer to the *Environmental Manual of Instruction*

Perform Additional Studies

- Perform additional studies as identified through resource research and agency coordination

Determine Need for Public Hearing

Based on resource impacts and agency coordination, determine if a public hearing or an opportunity for a public hearing is necessary. Coordinate with 33I.

23Y Analyze Environmental Resources

Overview

This includes all data gathering, field work, and technical reports required to complete the environmental document.

Deliverables

- ☐ Updated Electronic Environmental Resource File

Distribution

- ☐ Project File
- ☐ Region Environmental Lead
- ☐ 21R

Task	Responsible Party	
	Activity Leader	
	Project Environmental Lead	Region Environmental Lead
▪ Perform Resource Impact Analysis	X	
▪ Provide Environmental Resource Information	X	

Perform Resource Impact Analysis

Prepare technical documentation for each environmental resource potentially impacted; the information will be necessary to complete the environmental document. The results could include the identification of potential impacts, potential mitigation, and necessary permits. Refer to the *Environmental Manual of Instruction* for further information.

Provide Environmental Resource Information

Provide information about the environmental resources' locations to the designers in a format compatible for inclusion in the scroll plot for 29V.

25Y Develop Initial Landscape & Aesthetic Design

Overview

Create the overall initial project landscape and aesthetic design. Coordinate with other disciplines to incorporate features that enhance the project aesthetics.

Deliverables

- ☐ Initial Project Landscape and Aesthetic Design

Distribution

- ☐ Project File
- ☐ Project Design Engineer
- ☐ Region Landscape Architect

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect
▪ Coordinate with Local Municipalities		X
▪ Develop Landscaping and Aesthetic Design	X	

Coordinate with Local Municipalities

Determine the local municipality needs and their involvement in landscaping improvements. Begin developing concepts that will be included in the maintenance agreement.

Develop Landscaping and Aesthetic Design

Develop landscape plans using the aesthetic strategy created in 15Y, which includes information about a landscape palette and color selections.

- Layout design based on the following:
  - *Coordination of Roadway Design Elements*
    Roadway design elements should be coordinated in relation to the natural and built environment.
  - *Revegetation Design (e.g. Wetland Mitigation and Erosion and Sediment Control)*
    Revegetation design is intended to re-establish the natural elements prior to the project's impact. It is usually developed as a mitigation to meet environmental requirements or other state or federal regulations. Components of the revegetation design include, but are not limited to, the following:
    - Temporary Erosion Control
    - Grading

- Irrigation
- Planting

- *Landscape Design*
  Landscape design is intended to respond to the built environment. Landscape design can range from assisting with the mitigation of the visual impacts of noise walls to creating an aesthetic transition between the roadway and surrounding land use.
- *Site Development Design*
  Site development design is required for rest areas and sometimes for ports of entry. These designs include, but are not limited to, the following:
  - Grading
  - Plantings
  - Irrigation
  - Sidewalk layout
  - Site circulation design (both pedestrian and auto)
  - Lighting design
  - Bike paths
  - View overlook design
  - Location and placement of picnic tables
  - Site-interpretive features
  - Parking areas

31Y Write Categorical Exclusion Document

Overview

Complete the categorical exclusion for the project.

Deliverables

- ☐ Categorical Exclusion

Distribution

- ☐ Region Environmental Lead
- ☐ Central Environmental
- ☐ Project File
- ☐ Phase Leader
- ☐ FHWA

Task	Responsible Party	
	Activity Leader	
	Project Environmental Lead	Region Environmental
▪ Complete Categorical Exclusion Form in ePM	X	
▪ Submit Draft Categorical Exclusion for Review and Approval	X	

Complete Categorical Exclusion Form in ePM

Complete the environmental document form in ePM and attach all necessary documentation. See the *Environmental Manual of Instruction* for more information.

Submit Categorical Exclusion for Review and Approval

As necessary, incorporate comments based on reviews from the region environmental staff and resubmit.

35Y Identify and Prepare Permits

Overview

Based on the impacts identified in the categorical exclusion, prepare and obtain any permits necessary for the project.

Deliverables

- ☐ Approved Permit(s)

Distribution

- ☐ 79X
- ☐ ePM Screen 775
- ☐ Project File
- ☐ Phase Leader

Task	Responsible Party Activity Leader Project Environmental Lead
▪ Prepare and Submit Permit(s)	X
▪ Document in Project Commitment Database	X

Prepare and Submit Permit(s)

Prepare permit(s) and submit to resource agencies as required.

Document in Project Commitment Database

Approved permit(s), including all required mitigation, should be included in the project commitment database (ePM Screen 775).

37Y Obtain Environmental Approval (Federal Funding)

Overview

Finalize the categorical exclusion and obtain signatures for approval.

Deliverables

- ☐ Approved Environmental Document

Distribution

- ☐ Region Environmental Lead
- ☐ Project File
- ☐ Phase Leader

Task	Responsible Party Activity Leader Project Environmental Lead
▪ Finalize Categorical Exclusion Including Public Hearing Comments (If Applicable)	X
▪ Submit Categorical Exclusion for Approval	X
▪ Obtain Signatures	X
▪ Distribute Final Categorical Exclusion	X

Finalize Categorical Exclusion Including Public Hearing Comments (If Applicable)

Update the document with the responses to public comments gathered at the public hearing. After completing the comment response form, do the following:

- Attach all supporting documentation

Submit Categorical Exclusion for Approval

Obtain Signatures

Obtain the appropriate signatures.

Distribute Final Categorical Exclusion

38Y Obtain Environmental Approval (State Funding)

Overview

Finalize the categorical exclusion and obtain signatures for approval.

Deliverables

- Approved Environmental Document

Distribution

- Region Environmental Lead
- Project File
- Phase Leader

Task	Responsible Party Activity Leader Project Environmental Lead
▪ Finalize Categorical Exclusion Including Public Hearing Comments (If Applicable)	X
▪ Submit Categorical Exclusion for Approval	X
▪ Obtain Signatures	X
▪ Distribute Final Categorical Exclusion	X

Finalize Categorical Exclusion Including Public Hearing Comments (If Applicable)

Update the document with the responses to the public comment gathered at the public hearing. After completing the comment response form, do the following:

- Attach all supporting documentation

Submit Categorical Exclusion for Approval

Obtain Signatures

Obtain the appropriate signatures.

Distribute Final Categorical Exclusion

39Y Develop Landscape Design

Overview

Refine the project landscape and aesthetic design.

Deliverables

- ☐ Site Plans
- ☐ Landscape Plans
- ☐ Irrigation Plans
- ☐ Maintenance Agreement

Distribution

- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect (Oversight and Coordination)
▪ Develop Site Plans	X	
▪ Develop Landscape Plans	X	
▪ Develop Irrigation Plans	X	
▪ Establish Maintenance Agreement with Local Government		X

Develop Site Plans

If applicable, create a site plan for the project (e.g., rest areas and trail heads). Include the following items:

- Site circulation design (include both pedestrian and auto)
- Parking layout
- Sidewalk layout
- Bike paths and facilities
- Lighting design
- View overlook design
- Location and placement of picnic tables or shelters
- Site interpretive features (e.g., kiosks)

Develop Landscape Plans

Create landscape plans for the project. Include the following items:

- Grading plan

- Planting plan and plant list
- Revegetation plan (include pole plantings and seeded areas)
- Topsoil requirements based on findings from 15Y
- Prepare seed schedule using the standard UDOT format

Develop Irrigation Plans

- Identify water source for irrigation system (if needed)
- Irrigation for plantings (if needed)

Establish Maintenance Agreement with Local Government

If the corresponding local government has agreed to maintain landscape improvements, prepare a maintenance agreement to be executed between UDOT and the local government.

41Y Obtain Right-of-Way (Early Acquisition) Categorical Exclusion

Overview

Obtain environmental clearance for early acquisition parcels.

Deliverables

- ☐ Signed and Approved Categorical Exclusion

Distribution

- ☐ Region Environmental Lead
- ☐ Project File
- ☐ Phase Leader
- ☐ FHWA

Task	Responsible Party Activity Leader Project Environmental Lead
▪ Complete Categorical Exclusion Form in ePM	X
▪ Submit Categorical Exclusion for Review and Approval	X
▪ Obtain Signatures	X

Complete Categorical Exclusion Form in ePM

Complete the environmental document form in ePM and attach all necessary documentation. Refer to the *Environmental Manual of Instruction* for more information.

Submit Categorical Exclusion for Review

As necessary, incorporate comments based on reviews from the region environmental staff and resubmit.

Obtain Signatures

51Y Develop Erosion & Sediment Control Plans

Overview

Develop the project erosion and sediment control design.

Deliverables

- ☐ Erosion and Sediment Control Plans

Distribution

- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect or Drainage Designer	Region Landscape Architect (Oversight and Review)
▪ Design Erosion and Sediment Control Elements	X	
▪ Develop Initial Erosion and Sediment Control Plans	X	
▪ Detail Design	X	
▪ Prepare Initial Estimate of Quantities and Cost	X	

Design Erosion and Sediment Control Elements

- Design the location of erosion and sediment control elements using *UDOT's Temporary Erosion and Sediment Control Manual* to stabilize disturbed soil during construction and to capture and remove sediment from storm water runoff
- Evaluate the erosion and sediment control needs for the intermediate construction phases

Develop Initial Erosion and Sediment Control Plans

- Develop plans that identify the proposed locations for erosion and sediment control best management practices (BMPs)
- Call out all BMPs with standardized pay items

Detail Design

- Develop any non-UDOT standard details

Prepare Initial Estimate of Quantities and Cost

- Develop a list of pay items and summarized quantities
- Develop the initial estimate of unit costs

53Y Develop Landscape Plans

Overview

Following *UDOT CADD and Plan Sheet Standards*, prepare site, landscape, and irrigation.

Deliverables

- ☐ Site Plans
- ☐ Landscape Plans
- ☐ Irrigation Plans
- ☐ Updated Quantities
- ☐ Updated Unit Costs

Distribution

- ☐ 69X
- ☐ Project file

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect (Oversight and Coordination)
▪ Incorporate Revisions Identified in 39V	X	
▪ Develop Plan Sheets	X	
▪ Update Total Project Cost Estimate	X	

Incorporate Revisions Identified in 39V

Revise the landscape design, irrigation design, site design, quantities, and Total Project Cost Estimate based on the outcome of 39V.

Develop Plan Sheets

Following the current *UDOT CADD and Plan Sheet Standards*, generate the plan sheets. Do not prepare summary sheets at this time. Develop site plan sheets for the project if applicable (e.g., rest areas and trail heads).

For site plan sheets, do the following:

- Clearly label site amenities:
  - Buildings (e.g., restrooms, port of entry, visitor's center)
  - Sidewalks (including slope, dimensions, and joints)
  - Parking layout (e.g., handicap stalls and ramps, striping, signage, lighting, islands, and curbing)

- Trash receptacles
- Picnic tables and benches
- Pavilions
- Out-buildings (e.g., pump stations and maintenance sheds)
- Kiosks, monuments
- Trails, trail signage, interpretive signage

- Develop applicable detail sheets

For landscape plan sheets, do the following:

- Reference site plan
- Clearly label landscape features:
  - Grading (e.g., contours, slopes, and drainage)
  - Planting plan (e.g., symbols)
  - Plant list (e.g., symbol, botanical name, size, and quantity)
  - Revegetation plan (e.g., symbols and hatch patterns)
  - Revegetaion plant list (e.g., legend)
  - Topsoil (e.g., depths, limits, and total area)
  - Include seed schedule
- Develop applicable detail sheets

For irrigation plan sheets, do the following:

- Reference site plan
- Clearly label irrigation components:
  - Point of connection (e.g., water meter, well, or tap)
  - Point of connection (e.g., electrical meter or source)
  - Stop and waste valve
  - Backflow preventer
  - Filter and pressure reducer
  - Controller
  - Control wiring
  - Control valves (include valve number and flow rate)
  - Mainline (include sizing)
  - Laterals (include sizing)
  - Sleeves (include sizing)
  - Heads (include nozzle size and flow rate)
  - Drip zones
  - Emitters and bubblers (flow rate)
  - Legend (symbols, description, and quantity)
- Include 90-day irrigation establishment schedule
- Final irrigation schedule
- Develop applicable detail sheets

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Update Quantities and Unit Costs

Send updated quantities and unit costs to 69X.

71Y Develop Erosion and Sediment Control Project Documents

Overview

Finalize the erosion and sediment control plans and create summaries. Prepare and assemble erosion and sediment control project documents, including plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- ☐ Erosion and Sediment Control Project Documents

Distribution

- ☐ 79X

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect (Oversight and Coordination)
▪ Incorporate Revisions Identified in 69V	X	
▪ Develop Erosion and Sediment Control Project Documents	X	
▪ Measurement and Payment	X	

Incorporate Revisions Identified in 69V

Revise the erosion and sediment control plan sheets, quantities, and Engineer's Estimate based on the outcome of 69V.

Develop Erosion and Sediment Control Project Documents

- Follow the current *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate erosion and sediment control summary sheets.
  - Customize Excel spreadsheets for the specific project.
- Write erosion and sediment control special provisions.
- Provide the erosion and sediment control project documents to 79X.

Update Quantities and Unit Costs

Send updated quantities and unit costs to 79X.

73Y Develop Site, Landscape, and Irrigation Project Documents

Overview

Finalize the site, landscape, and irrigation plans and create summaries. Prepare and assemble site, landscape, and irrigation project documents, including plans, special provisions, and Engineer's Estimate in PDBS.

Deliverables

- □ Site, Landscape, and Irrigation Project Documents

Distribution

- □ 79X

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect	Region Landscape Architect (Oversight and Coordination)
▪ Incorporate Revisions Identified in 69V	X	
▪ Develop Site, Landscape, and Irrigation Project Documents	X	
▪ Update Quantities and Unit Costs	X	

Incorporate Revisions Identified in 69V

Revise the site, landscape, and irrigation plan sheets, quantities, and cost estimate based on the outcome of 69V.

Develop Site, Landscape, and Irrigation Project Documents

- Follow the current *UDOT CADD and Plan Sheet Standards* and the *UDOT Summary Sheet Training Manual* to generate site, landscape, and irrigation summary sheets.
  - Customize Excel spreadsheets for the specific project.
- Write site, landscape, and irrigation special provisions.
- Provide the site, landscape, and irrigation project documents to 79X.

Update Quantities and Unit Costs

Send updated quantities and unit costs to 79X.

83Y Prepare SWPPP Package for Construction

Overview

Complete the SWPPP package and submit to the Resident Engineer.

Deliverables

- ☐ Completed SWPPP Package

Distribution

- ☐ Resident Engineer
- ☐ Project File

Task	Responsible Party	
	Activity Leader	
	Project Landscape Architect or Designer	Region Landscape Architect
▪ Assemble SWPPP Package	X	
▪ Send SWPPP Package to Resident Engineer		X

Assemble SWPPP Package

The SWPPP package is a stand-alone document that summarizes all the erosion and sediment control activities taking place on the project. This document should be updated throughout the life of the project to reflect changing conditions or project phasing.

The package will contain the following:

- Description of the project location, size, and impacts
- Project specific BMPs
- Applicable plans and details from the erosion and sediment control plan set
- Inspection sheets

Send SWPPP Package to Resident Engineer

The Region Landscape Architect provides the SWPPP package to the Resident Engineer.

00Z Project Setup

Overview

The Project Manager will set up the project in ePM and verify project funding. The project file will be set up and the need for VE, CEVP, and the type of project delivery will be determined. The project Definition Document will also be written during this activity.

Deliverables

- ☐ Project Set-Up in ePM
- ☐ Project Scope
- ☐ Project Schedule
- ☐ Project Budget
- ☐ Project Definition Document

Distribution

- ☐ Project File

Task	Responsible Party Activity Leader Project Manager
▪ Ensure That Project Is in a Funded Year	X
▪ Obligate Funds	X
▪ Obtain and Review Project File	X
▪ Identify If VE Is Needed	X
▪ Identify If CEVP Is Needed	X
▪ Identify Appropriate Project Delivery Method	X
▪ Develop a Project Definition Document	X
▪ Set Up Project in ePM	X
▪ Set Up Project File System	X

Ensure That Project Is in a Funded Year

The Project Manager checks ePM screen 710 and 505, PIN tab, to confirm that Program Development has established a project identification number (PIN) and that the project is funded in the current fiscal year. If not, e-mail the STIP Development Coordinator, and request appropriate revisions.

Obligate Funds

The Project Manager completes Form R-709 and submits to Programming to obligate design and ROW acquisition funds.

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Obtain and Review Project File

The Project Manager reviews all contents of the project file and becomes familiar with them. At a minimum, the file should contain the following:

- Planning/Corridor Studies
- Concept Report
- Alternative Delivery Methods (Design Bid Build or CMGC)
- Cost Estimate (Verify Funding Is Correct)
- Environmental Clearance
    - Confirm the project will require a categorical exclusion and at what level it will be
    - Coordinate with region environmental staff

Identify If VE Is Needed

Identify the cost for VE.

Identify If CEVP Is Needed

Identify the cost for CEVP.

Identify Appropriate Project Delivery Method

Evaluate whether alternate delivery methods are applicable (i.e. Design/Bid/Build, CMGC, Design-Build, etc.) If Design-Build is selected, then use the Design-Build Network found in the project delivery handbook.

Develop a Project Definition Document

Project Manager develops a one-page description of the project objectives and goals. This should include specific items of work to be accomplished and items that specifically will not be completed. Clearly indicate project limits and any known constraints. Information to complete this document can be gleaned from the project file, discussions with region management, and stakeholder input. The project definition document defines the overall project "scope."

Set Up Project in ePM

At this time, the Project Manager should have enough information to set up the project in ePM Screen 450, "Network Selector/Activity Generator." The Project Manager may not have enough information to override any durations or hours, but s/he can choose the "Simple, Average, or Complex option."

- Choose network and choose activities
- Include setup of categorical exclusion form in ePM if necessary

Set Up Project File System

The Project Manager will set up the project's filing system (e.g. Projectwise).

01Z Project Management

Overview

The Project Manager will provide oversight of the project through the entire phase to ensure successful completion of the project.

Deliverables

- ☐ Team Meetings and Meeting Minutes
- ☐ Updated ePM
- ☐ Updated Budget
- ☐ Updated Schedule
- ☐ Invoicing
- ☐ Resources
- ☐ Contract Modifications

Distribution

- ☐ Project File
- ☐ Project Team (As Applicable)

Task	Responsible Party	
	Activity Leader	
	Project Manager	Phase Leader
▪ Schedule and Attend Team Meetings and Provide Meeting Minutes		X
▪ Update/Review ePM		X
▪ Review/Process Consultant Invoices	X	
▪ Contract Modifications	X	

Schedule and Attend Team Meetings and Provide Meeting Minutes

This covers preparation and attendance of regular project team meetings for all team members (e.g., bi-weekly team meetings). This does not include the time to prepare and attend the milestone meetings or other meetings associated with a specific activity. For example, 11I Develop Initial PI Plan will likely involve a coordination meeting with several project team members. The time spent on this meeting should be charged to 11I, not 01Z.

Update/Review ePM

Covers updates and reviews of ePM.

- Manage project budget
- Monitor/update schedule

- Evaluate and update staffing

Review/Process Consultant Invoices

Contract Modifications

This covers all time spent identifying, developing, and negotiating contract modifications. See the *Consultant Services Manual of Instruction* for specific requirements.

03Z Obtain Mapping Consultant

Overview

The intent of this activity is to obtain a mapping consultant as quickly as possible. This activity will generally be a pool contract that is independent from any design contracts. This activity may be used on in-house design projects as well as consultant design projects.

Deliverables

- ☐ Executed Contract

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ CSA

Task	Responsible Party	
	Activity Leader	
	Project Manager	CSA
▪ Determine Type of Consultant Selection	X	
▪ Obtain Consultant		X

Determine Type of Consultant Selection

The Project Manager determines the type of consultant selection, e.g., pool, standard request for qualifications (RFQ), or streamlined standard request for qualifications (RFQ). The Project Manager is responsible for initiating the request for qualifications.

Obtain Consultant

Follow the process outlined in the *Consultant Services Manual of Instruction*.

05Z Identify Project Resources

Overview

Identify the project resources based on information from the concept report and functional managers. This is a high level look at resources and staffing required to successfully deliver the project.

Deliverables

- ☐ Identification of in-house project resources
- ☐ Determination if consultant is required

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ Region Functional Managers

Task	Responsible Party	
	Activity Leader	
	Project Manager	Functional Manager(s)
▪ Identify Project Staffing Strategy	X	
▪ Identify Project Team	X	
▪ Develop Project Scope	X	

Identify Project Staffing Strategy

The Project Manager, in consultation with functional manager(s), determines a project staffing strategy. The strategy should address if the work should be performed in-house, by a consultant, or by a combination of both.

- Determine project staffing needs based upon the type and characteristics of the project.
  - Determine technical needs of the project
  - Determine technical capabilities within the department
  - Determine the PI needs for the project
  - Determine availability of staffing resources
  - Determine if this project will be performed in-house, by a consultant, or a combination of both
  - Determine time limitations

Identify Project Team

If the strategy shows need for in-house staff, identify specific staff to include on the team. The Project Manager and Functional Manager(s) agree to team members and assign all key team members (i.e. Phase

Leader, Resident Engineer, Environmental Lead, Hydraulics Engineer, Structures Project Manager, ROW Agent, design staff, etc.).

Develop Project Scope

The Project Manager, in consultation with Functional Manager(s), develops a detailed scope of the work to be accomplished by the project team. This includes not only the scope of work for the consultant to be negotiated in 07Z but also an equally detailed scope of work for all internal units. The scope of work should define specific deliverables and staff responsibilities. If the project design will be completed internally at UDOT, develop the initial schedule and budget. This initial schedule and budget will be reviewed at 09V.

07Z Obtain Design Consultants

Overview

Obtain design consultants for the project. This may include hiring a consultant to complete the entire design or to complete specific portions of the project.

Deliverables

- ☐ Executed Contract

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ CSA

Task	Responsible Party	
	Activity Leader	
	Project Manager	CSA
▪ Determine Type of Consultant Selection	X	
▪ Obtain Consultant		X

Determine Type of Consultant Selection

The Project Manager determines the type of consultant selection, e.g., pool, standard request for qualifications (RFQ), or streamlined standard request for qualifications (RFQ). The Project Manager is responsible for initiating the request for qualifications.

Obtain Consultant

Follow the process outlined in the *Consultant Services Manual of Instruction*.

11Z Develop Draft Design Transportation Management Plan (TMP)

Overview

Develop a draft Design Transportation Management Plan (TMP) to coordinate traffic control, PI, and maintenance of traffic with adjacent projects.

Deliverables

- ☐ TMP Summary Report
- ☐ Draft Design TMP

Distribution

- ☐ Project File
- ☐ Program Manager
- ☐ 19V

Task	Responsible Party	
	Activity Leader	
	Phase Leader	Project Manager
▪ Identify the Need for a Transportation Management Plan (TMP)		X
▪ Assemble a Traffic Planning Team (TPT)		X
▪ Analyze Potential Project Impacts	X	
▪ Develop a Draft Design TMP	X	
▪ Develop the Summary Report	X	
▪ Develop a Plan, Cost, and Schedule to Develop and Implement the TMP	X	

Identify the Need for a Transportation Management Plan (TMP)

Refer to UDOT Policy 08-5 for guidelines regarding the need for a TMP.

If a TMP is needed, complete the following tasks:

Assemble a Traffic Planning Team (TPT)

Analyze Potential Project Impacts

Develop a Draft Design TMP

- Identify Limitations of Operations

- Identify Adjacent Projects
  - Identify Potential Conflicts
  - Recommend Schedule Changes if Necessary to Avoid Conflicts
- Identify PI Requirements
- Identify Alternate Routes

Develop the TMP Summary Report

- Includes the following:
  - TMP Summary
    - Provide TMP Summary to Region PIM
  - Initial Cost Estimate
    - Construction Costs
    - Design Costs
  - Recommended coordination with adjacent projects

Develop a Plan, Cost, and Schedule to Develop and Implement the TMP

21Z Obtain VE Consultant

Overview

This activity identifies the need for a VE study and outlines the steps necessary to obtain a VE consultant.

Deliverables

- ☐ Negotiated Contract

Distribution

- ☐ Project Manager
- ☐ CSA
- ☐ VE Coordinator

Task	Responsible Party		
	Activity Leader		
	Value Engineering Coordinator (VEC)	CSA	Consultant
▪ Select a VE Consultant	X		

Select a VE Consultant

Engage a VE consultant. Refer to the Consultant Services Website for contracting information.

23Z Develop CMGC RFP

Overview

Develop the RFP for the selection of a CMGC contractor.

Deliverables

- ☐ CMGC RFP

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ CSA

Task	Responsible Party Activity Leader Project Manager
▪ Develop the CMGC RFP	X

Develop the CMGC RFP

Refer to the UDOT CMGC Website for guidance in developing the CMGC RFP.

25Z Obtain CMGC

Overview

Using the UDOT CMGC procurement process, select a CMGC contractor.

Deliverables

- ☐ Executed Contract

Distribution

- ☐ Project File
- ☐ Program Manager
- ☐ Project Manager
- ☐ CSA

Task	Responsible Party		
	Activity Leader		
	Project Manager	CSA	Consultant
▪ Select Contractor		x	

Select Contractor

Follow the UDOT CMGC procurement process to select a contractor. Refer to the UDOT CMGC Website for guidance.

29Z VE Study

Overview

Value Engineering (VE) is the systematic application of recognized techniques to achieve the following:

- Identification of unnecessary project costs
- Identification of VE alternatives that reliably provide necessary functions consistent with quality, reliability, life-cycle cost, and other critical factors required by the project

Project quality and functions are improved while lowering the cost and using fewer resources.

Deliverables

- ☐ VE Study Report

Distribution

- ☐ Project File
- ☐ Project Manager
- ☐ Region Preconstruction Engineer
- ☐ Project Design Engineer
- ☐ VE Manager

Task	Responsible Party			
	Activity Leader: Project Manager	Project Design Engineer	Phase Leader	Value Engineering Manager
▪ Assemble All Project Information			X	
▪ Conduct VE Study				X
▪ Prepare VE Study Report				X
▪ VE Recommendation Acceptance	X			
▪ Incorporate VE Recommendations		X		

Assemble All Project Information

- Plans/Design
  - As-Constructed
  - Preliminary
    - Horizontal Alignment
    - Vertical Alignment
    - Typical Sections
  - ROW
  - Utilities

- Detailed Engineer's Estimate
- Topography and Contour Maps (Aerials)
- PDC
- Environmental Resources
- Pavement Design Data
- Structures Information
  - As-Constructed Plans
  - Sufficiency Ratings
- Drainage Data

Conduct VE Study

The VE team conducts the VE study; see the *UDOT VE Manual of Instruction* for more information.

For the VE presentation, the following people are required attendees:

- UDOT Upper Management
- Project Manager
- Design Team
- Functional Manager(s)
  - Structures
  - Hydraulics
  - ROW

Prepare VE Study Report

Compile and document the results of the VE study into a report. Include an implementation plan for the study results.

VE Recommendation Acceptance

- Review VE recommendations
- Identify VE recommendations to carry forward
- Develop the justification for VE recommendations that are rejected or modified

Incorporate VE Recommendations

Incorporate the recommendations into the appropriate Set Initial Geometry sub-stage activities.

31Z Obtain CE Consultant(s)

Overview

Obtain a construction engineering consultant (if appropriate) who will be contracted during this stage to provide comments regarding constructability issues. The consultant will provide oversight during construction.

Deliverables

- ☐ Request for Qualifications
- ☐ CE Consultant Selection
- ☐ Pre-Negotiation

Distribution

- ☐ Project File
- ☐ Program Manager
- ☐ Project Manager
- ☐ CSA

Task	Responsible Party		
	Activity Leader		
	Project Manager	CSA	Consultant
▪ Determine Type of Consultant Selection	X		
▪ Prepare Request Documents	X		
▪ Seek Approval of R-709 (Authorization of Funding)	X		
▪ Develop RFQ—Hold Scoping Meeting	X		
▪ Advertise RFQ		X	
▪ Select Consultant		X	
▪ Prepare Documents for Contract			X
▪ Negotiate, Review, and Approve Documents	X		
▪ Prepare Contract, Seek Approvals, and Execute		X	

Determine Type of Consultant Selection

The Project Manager determines the type of consultant selection, e.g., pool, standard request for qualifications (RFQ), or streamlined standard request for qualifications (RFQ). The Project Manager is responsible for initiating the Request for Qualifications.

Prepare Request Documents

The Project Manager prepares the following documents and submits them to the CSA to initiate the RFQ process:

- Request for Contract or Modification/Financial Screening Request Form
- R-709—Authorization of Funding Request Form
- Draft Scope of Work
- Independent Cost Estimate (ICE) from ePM Screen 430
- Proposed Selection Team
- Updated Screen Prints of ePM Screen 505

Seek approval of R-709 (authorization of funding)

The CSA forwards the R-709, scope, and ICE to the Systems Planning and Programming department for funding approval. The RFQ cannot be advertised until the R-709 is approved.

Develop RFQ—Hold Scoping Meeting

The selection team, which includes the Project Manager, CSA, FHWA representative, and technical representatives, holds a scoping meeting to develop the RFQ, refine the scope of work, and determine the consultant selection schedule.

Advertise RFQ

The CSA advertises the RFQ in the local newspapers, posts it on the consultant services website, and issues a notification to the Consultant Services Email Subscriber Service. Interested consultants submit a statement of qualifications (SOQ).

Select Consultant

The selection team reviews and scores submitted SOQs. The CSA averages the scores and compiles the comments of the selection team.

The selection team meets and determines whether or not interviews are necessary based on the compiled scores/comments. If the first-ranked firm's score is clearly higher than the others, the selection team may recommend that the Project Manager proceed to negotiations without interviewing. If the first-ranked firm's score is not clearly higher than the others, interviews are required.

The selection team short-lists consultants for interviews based on the SOQ scores. The CSA arranges for interviews with the short-listed firms. Based on the interviews, a firm is selected. The Project Manager then proceeds to negotiations with the selected firm.

If the Project Manager cannot come to an agreement with the selected firm, the Project Manager notifies the CSA. The Project Manager and CSA may discontinue negotiations with the firm and start negotiations with the second-ranked firm. NOTE: The RFQ may be canceled at any time.

Prepare Documents for Contract

Based on the scope of work, the consultant's SOQ, and discussion, the consultant develops a work plan and prepares the documents required by the Consultant Services department for a contract:

- Executive Summary

- Work Plan
- QC/QA Checklist
- Staffing Plan
- Project Schedule
- Certificate of Insurance
- Cost Proposal
- Subconsultant information

Negotiate, Review, and Approve Documents

The Project Manager and CSA review the information provided by the consultant and negotiate revisions.

When the Project Manager approves, s/he forwards the documents prepared by the consultant, along with the following additional documents, to the CSA:

- Approval memo
- Revised ICE
- Email justification of ICE revision
- Updated screen print of ePM Screen 505

The CSA reviews documentation for format and accuracy, and then requests any revisions or supplemental information required.

Prepare Contract, Seek Approvals, and Execute

If the negotiated amount is more than ten percent higher than the original R-709 amount, the CSA revises the R-709 Authorization of Funding request and forwards it to the UDOT Systems Planning and Programming department for approval.

The CSA prepares the contract and seeks approval from the appropriate UDOT officials, the consultant, and the UDOT Comptroller's Office.

Once the contract has been approved, the CSA confirms that the R-709 Authorization of Funding request has been approved and executes the contract with a notice to proceed.

The consultant may not begin work on the contract until after the notice to proceed is issued by the CSA.

71Z Finalize Design Transportation Management Plan (TMP)

Overview

Finalize the Design Transportation Management Plan (TMP) based on information provided throughout the design process. This involves input from program managers, PI, and adjacent projects to provide direction for finalizing the project's traffic control plan, maintenance of traffic plan, and PI strategies. This does not include the execution or conclusion-report phases of the TMP as defined by UDOT Policy 08-5.

Deliverables

- □ Design TMP

Distribution

- □ Project File
- □ Program Manager
- □ 79V

Task	Responsible Party	
	Activity Leader	
	Phase Leader	Project Manager
▪ Update and Finalize Design TMP	X	
▪ Disseminate Design TMP to TPT Members		X

Update and Finalize Design TMP

- Incorporate results of 71I and 79T into the final TMP.
- Create an executive summary of the Design TMP and include the PI Plan, Maintenance-of-Traffic Plan, and Limitations of Operations.

Disseminate Design TMP to TPT Members

Review Design TMP with the Resident Engineer, Traffic and Safety Engineer, and Program Manager and other applicable parties.

83Z Prepare Advertising Package

Overview

Following UDOT guidelines, assemble all files required for advertising package.

Deliverables

- ☐ Complete advertising package

Distribution

- ☐ Project File
- ☐ Region Project Manager Technician
- ☐ Project Manager

Task	Responsible Party	
	Activity Leader	
	Phase Leader	Project Manager
▪ Obtain Advertising Checklist	X	
▪ Complete Advertising Checklist	X	
▪ Assemble Advertising Package	X	

Obtain Advertising Checklist

Checklists are available for download for federal, state, and design-build federal projects.

Complete Advertising Checklist

Instructions for completing the checklist for federal and design-build federal projects are available for download. Note the requirements for submitting and distributing addenda to the advertising package. Compile and assemble necessary documents and approvals.

Assemble Advertising Package

Burn required files on CD and assemble required hard copies.

85Z Advertise

Overview

Advertise the project for bid.

Deliverables

- ☐ Biddable project on UDOT website

Distribution

- ☐ Statewide and Local Newspapers
- ☐ UDOT Website

Task	Responsible Party Activity Leader Advertising Unit
▪ Publish Notice to Contractors in Newspaper	X
▪ Load Advertising Documents onto UDOT website	X
▪ Include Addenda to the Project (when necessary)	X

Publish Notice to Contractors in Newspaper

Project should be published for two consecutive weeks in the newspapers with statewide distribution and one week with local county newspaper to coordinate with the project site.

Load Advertising Documents onto UDOT Website

Post Notice to Contractors, Plan Set, Planholders List, Bid Items, Project Specifications, and Addendum on UDOT website for contractors to access.

Include Addenda to the Project (when necessary)

Addenda to bid proposals must be mailed, e-mailed, and transmitted by fax to all plan holders at least 11 calendar days preceding the bid opening date.